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PTOLEMAIC AND ROMAN BATHS
OF
KŌM EL AHMAR

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**PTOLEMAIC AND ROMAN BATHS
OF
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BY
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PRE-PTOLEMAIC BATHS.

Whether public baths ever existed in Pharaonic Egypt is not certain. The fact however that excavations have so far yielded mostly tombs, no considerable city-sites having been discovered, makes us hesitate to suggest that such baths did exist.

Homer ⁽¹⁾ probably is the first to refer to the Egyptian baths although his indication is merely indirect, he mentions that the king of Egypt sent two silver water-tubs as gift to the palace of Menelaus. Diodorus' vague reference to baths, "they were forbidden in deep mourning to indulge in them" does not tell us the exact nature of the baths to which he alludes ⁽²⁾.

Egyptian paintings show, as do the Greek painted vases, bathing in progress. Wilkinson describes one of these paintings which was in a tomb at Thebes. "A lady is represented with four attendants waiting upon her, performing various duties. One removes her jewellery and clothes and hangs them on a stand. Another pours water from a vase over her head, and a third massages her body with the palms of her hands. A fourth attendant seated nearby, holds a flower to the lady's nose and supports her in her sitting position" ⁽³⁾.

⁽¹⁾ *Odyssee*, IV, 128. — ⁽²⁾ DIODORUS, I, 72. — ⁽³⁾ WILKINSON, *The Manners and Customs of the Ancient Egyptians*, t. II, p. 353.

It seems that this early luxuriousness was obtained, to a certain extent for bathing in the house. The bath as represented by the painting in question however, was improved as shown by the excavations at Tell el-Amarnah⁽¹⁾. The private baths which have now been discovered represent an evolution from the primitive bath. They became real bathrooms, with a bathing slab in a corner, and a water channel leading into a round hole in the ground. The latter was originally cemented within a large bowl holding the water, which was then baled out by hand. Beside the bathroom was almost certainly a lavatory⁽²⁾. Another bathroom yielded a different example. It consisted of a slab of limestone fitted into one corner with two up-right slabs to protect the wall from splashing. The water ran off into a vase cemented into the floor. In the trial house excavated by the Germans near Etil, there was a channel across the floor emptying through a hole in the wall. The taking of waste-water was effected by a primitive drain obtained by fixing a tubular pot, with the bottom knocked out in a hole made through the wall. A large vase received the outflow, and was emptied by means of a small plug found in it⁽³⁾. The bathroom of the *harem* in Ramses III's palace is on the same plan, although of a different arrangement. It consists of a wall dressing and a hollowed out floor slab. Drainage leads into a basin set at a lower level⁽⁴⁾.

Such were the features of the Egyptian private hammams. The simple baths and the ablution building types, differ from those of the Græco-Roman period. The lack of basins or water-tubs together with the absence of any arrangement for warming the water, or anointing the body with ointments, show that the bath was not for the Egyptians a physical training as it was for the Greeks. The Egyptians regarded them as means of purification as well as cleanliness.

The hot climate of Egypt and its sand and dust, then as now, necessitated more than one bath a day. The situation in Egypt and its climate

⁽¹⁾ FRANKFORT, *The City of Akhnaten*, t. I: *Excavation at Tell el Amarnah*, p. 30.

⁽²⁾ *Ibid.*, pl. VI, fig. 1.

⁽³⁾ *Ibid.*, p. 29 and pl. VIII, fig. 6.

⁽⁴⁾ HÖLSCHER-WILSON, *Medinet-Habu. Studies*, 1928/1929, p. 22, fig. 17. (*The Oriental Institute Communications*, n° 7.)

influenced its religion. Also for king, priests and priestesses all had to be purified before praying in the temple. • This habit reminds us of the *Wodou* (الوضوء) of the *Moslems*. For this reason every temple seems to have possessed a small bathroom, or a room containing a bank or a pool for the purpose of bathing. In the temple of Edfu, to the left of the entrance, there is a small chapel, the chamber of consecration. Here the golden vases were kept, with which the celebration was carried out and in particular the Pharaoh (on the occasion of his acting as a high-priest of the great annual-festival of Horus and Hathor), was purified. A scene on the wall of this room shows the king being purified in this way by Horus and Thot⁽¹⁾.

When the king arrived at the temple he immediately suffered himself to be washed⁽²⁾. He was supposed to bathe with the sun-god in the pool of Earu, when he was dried by Horus and Thot; or perhaps he washed his feet in the sun god's own silver basin, which had been fashioned by Sokar. He then washed his mouth and nails⁽³⁾. Also priests and priestesses always had to wash or sprinkle themselves before entering the temple or engaging in any religious ceremony⁽⁴⁾.

In fact we can see in the vague reference of Diodorus a religious symbolism; or perhaps the Egyptians considered baths as a sort of luxuriousness. The Greeks and Romans essentially looked at baths as a hygienic necessity. It was not prohibited to take a bath at any time.

Nature and climate in Egypt, as mentioned above, added to the abundance of water encouraged bathing not only in houses but also in the Nile. The bathroom or the house of morning, or the cabinet of morning, was probably so named because "in modern Egypt ablutions were performed immediately after rising"⁽⁵⁾. The description of Ramses III's palace indicates the place of the bathroom:—In the centre is the two columned private living-room of the king. At the left is his bedroom. Then comes a standing gateway with a narrow corridor

⁽¹⁾ BAIKIE, *Edfu temple*, in: *Egyptian antiquities in the Nile Valley*, p. 659.

⁽²⁾ GARDINER, *R. T.*, 1912, p. 198.

⁽³⁾ BLACKMAN, *Purification*, in: *Encycl. of Religion and Ethics*.

⁽⁴⁾ *Ibid.* Cf. also DAVIES and GARDINER, *The Tomb of Amenemhêt*, p. 74 and MARIETTE, *Les mastabas de l'Ancien Empire* D. 47, p. 308.

⁽⁵⁾ BLACKMAN, *op. cit.*

behind it, leading to the *harem*. On the right lies the room through which the private apartments were entered, and beside it the royal bath and toilet and a small side room ⁽¹⁾.

Vessels for washing were made of pottery, precious metals or bronze. Ewers or basins were used for washing hands and for feet ablutions. For bathing or sprinkling purposes pitchers were employed, all were originally made of pottery and then of metal. For the king all these vessels were of gold and silver inlaid with precious stones.

Until excavations will disclose public baths of the Pharaonic period, we must consider the Greek public bath as the first of its kind. If such buildings were discovered we shall expect them to be simple and not as complicated as private baths. Also they will differ from Greek or Roman public baths.

GREEK BATH (BAAANEION) ⁽²⁾.

Before they used baths for hygienic purposes, the Greeks considered them to be a religious duty. The washing of the statues of divinities was part of the rites as in the case of the goddesses Athena (Πλυντήρια, *Plynteria*) and Hera (Τοβατα, *Tonaia*). A bride must be bathed in a special spring before her wedding. On the day before marriage, too, water for the bridal bath was brought in procession, in a special tall vase called λουτροφόρος, *lotrophoros* ⁽³⁾.

Homer ⁽⁴⁾ is the first to mention baths; but only in a brief way, and he refers to private bathing only. Hot and cold baths make their appearance in his time. He says that his heroes, after having made special efforts, always took a hot bath to restore their energies. The Greeks

⁽¹⁾ HÖLSCHER-WILSON, *op. cit.*, p. 18, fig. 14. Cf. also HÖLSCHER, *Medinet-Habu*, p. 24-25. *Ausgrabungen des Oriental. Institutes der Universität Chicago*, 1933, and FRANKFORT, *op. cit.*, and ERMANN, *Ägypten*, p. 200 and n. 3 and WILKINSON, *op. cit. and other excavations*.

⁽²⁾ « Βαλανεῖον » est le nom général;

les *thermes* sont souvent des parties du balaneion; à l'époque byzantine le mot λουτρόν est plus fréquent que βαλανεῖον». P. JOUQUET dans PAUTY, *Les Hammams du Caire*, p. 13.

⁽³⁾ Cf. *Guide of B. M.*, p. 25.

⁽⁴⁾ SCHOL., *Iliad*, X, 576 et *Odyssee*, IV, 48. — HESYCHIUS, *Artemidor Oneir*, I, 66.

looked on bathing as be restorative rather than hygienic, and they bathed in rivers or in the sea. In each bathroom was a bath-tub (ἀσάμινθος, *asaminthos* = tank). Homer, when writing of Tiryns, describes this as highly polished (εὖξεστος, *euvestos*). This epithet suggests that it was made of wood or marble. Previously it was made of terracotta and decorated with paintings ⁽¹⁾. Others were of stone or earthenware; there were also some fashioned in precious metals, of which there were two of silver in the palace of Menelaus, a gift from the king of Egypt ⁽²⁾.

The hot bath was very simple. Homer says that the water was placed in a large vessel on a tripod and heated by means of a fire placed underneath. It was then poured into the bath-tub which had been prepared by the maids ⁽³⁾ and occasionally by the mistress of the house. In the classical period bathing had great importance. Cold baths were regarded as a part of physical training. For example, at Sparta children took a daily bath in the river Eurotas. Hot baths were considered a luxury. In Athens there was even a law prohibiting the installation of hot baths within the town boundaries. In spite of the protests of moralists of the Old School, a gymnasium was established complete with hot, tepid and cold baths. In the Vth century B. C. Herodotus mentioned the vapour-bath. The regular time for a bath was at 3 o'clock in the afternoon, before the chief meal (δείπνον, *deipnon*). Some bathers were so fond of these baths that they never left them. Others spent the whole day there, using them as a refuge, where they could indulge their laziness. To those public baths it seems that Aristophanes refers when he makes his character (Right-Reason Δίκαιος λόγος) advise the youth "to shun the market place and to keep away from public baths" ⁽⁴⁾, but he does not mean swimming baths: "There seems however to have been prejudice against the use of public swimming baths at Athens" ⁽⁵⁾.

⁽¹⁾ G. PERROT et Ch. CHIPIEZ, *Histoire de l'art dans l'antiquité*, t. VI, p. 289-291.

⁽²⁾ *Odyssee*, IV, 128, cf. also DAREMBERG et SAGLIO, *Dictionnaire des Antiquités grecques et romaines* : BALNEUM.

⁽³⁾ G. PERROT et Ch. CHIPIEZ, *ibid.*,

t. VII, p. 96. « Car ce sont toujours les servantes qui baignent les hôtes et qui les frottent d'huile. »

⁽⁴⁾ ARIST., *Nub.*, 991. « ... και βαλανεῖων ἀπεχέσθαι. »

⁽⁵⁾ *The guide to the exhibition illustrating Greek and Roman life*, p. 111.

This was why there were so many who objected to these establishments. Public baths at that time were distinguished as *δημόσια*, *demosia* and private as *ἰδία*, *idia*. For the Greeks bath means the tubs and the showers were called *κρουνός*, *krounos*.

The method of bathing is shown on certain painted vases; some of them show⁽¹⁾ a scene as follows: a portico inside which the water flows out of an animal headed spout, and above two men bathing and two others rubbing themselves with oil from a vase hanging from a tree; all are in the open air. There is no sign of a room for massages (*ἐλαιothékion*, *elaiothékion*) nor of a cloak-room (*ἀποδυτήριον*). Thefts were frequent, and so guards (*ἱματιοφυλακοῦντες*, *himatiophylakountes*) had to be supplied for each bath. A law was passed providing very heavy penalties and even death occasionally. Things for the toilet and bath were brought by bathers or their slaves. Another very large vase shows a tank (*πέγλος*-, *pyelos*) for the use of two people. There are also two women bathing under two jets of water from spouts in the wall. The water in the bath-tub reaches to the knees. Their clothes were hung on a horizontal bar. On another vase of about 520 B. C. is a scene of a woman swimming and another preparing to swim⁽²⁾ in water containing fish showing that it came from a running stream. At the side are women massaging themselves with oil. This scene suggests that the Greeks had special baths for women. Pauty says: "Le bain semble avoir joué dans la vie des femmes grecques le rôle important que nous lui voyons tenir dans la vie orientale du Moyen-Âge et des temps modernes. Nombreuses sont les figurations qui nous montrent des femmes dans la douche ou dans la baignoire. Elles sont surtout représentées dans des attitudes, familières encore aujourd'hui, auprès des vasques, nues, debout, plongeant leurs bras dans les bassins, se faisant arroser d'eau, s'occupant des soins de leur toilette"⁽³⁾.

⁽¹⁾ DAREMBERG et SAGLIO, *Dictionnaire des Antiquités grecques et romaines*; BALNEUM, fig. 745, cf. also LAVEDANT, *Dictionnaire des Antiquités grecques et romaines*: BAIN. Also ROULEZ, *Choix de vases peints du Musée de Leyde et Gand*, pl. XIX, p. 79.

⁽²⁾ The importance attached to the

art of swimming is shown by the proverb describing the typical ignoramus as ignorant alike of letters and swimming « ἄν καὶ τὸ λεγόμενον μήτε γράμματα μήτε νεῖν ἐπίστωνται ». PLAT., *Leg.* 689 D. and *Guide*, p. 111.

⁽³⁾ PAUTY, *ibid.*, p. 111.

On another vase is shown a bath-tub (*λουτήρ* or *λουτήριον*, *loutér* or *loutérian*) inscribed "public" (*δημόσια*, *demosia*) on a stand (*ὑπόστατον*, *hypostaton*) with bathers standing round. One of them is throwing water over himself⁽¹⁾. The Greeks knew the complete bath, hot cold and steam bath. Herodotus mentions the last as a usual custom⁽²⁾. Nothing proves this so well as the discovery of the ruins of the bath in the extreme west of the Delta which professor Breccia identifies as Ptolemaic. This bath offers us a neat evidence that Greeks had steam baths in Egypt. Professor Breccia thinks that ablution was a well established and frequent custom in Egypt at that period. Pauty accepts this, giving the evidence of the texts which insist on the great number of baths existing during the Roman period until the conquest of Egypt by the Arabs. This bath contains two circular halls with tubs or seats on both sides heated to a different temperature. The arrangement of the seats denotes that it was a medical bath. Had the hypocaust of this medical bath not been found, it could only be a steam bath⁽³⁾. The Greeks knew it as the underground furnace; it was also used during the Greek period. That furnace was called *πυρία*; some authors mention *πυριατήριον* meaning the laconicum. This is confirmed by Pauty who says: "Les calorifères placés sous le sol et les gaines d'air chaud montant dans les parois sont des inventions grecques du dernier siècle de la République, qui reçurent leur perfectionnement un peu plus tard"⁽⁴⁾. Also Herodotus mentions

⁽¹⁾ *Guide*, *ibid.*

⁽²⁾ LAVEDANT, *Dictionnaire des Antiquités grecques et romaines*: BAINS.

⁽³⁾ *Bull. de la Soc. d'Archéol. d'Alexandrie*, t. V, p. 142-149. Other circular baths (of steam) were recently found. One at Shishet al Ana'am شيشة الانعام in the neighbourhood of Damanhour, consists of two circular halls of seventeen seats each; the other is a public one. It was discovered by Naguib Farag (1946) at tell Athrib تل اثريب in Benha. Its circular hall, which is certainly earlier than the rest of the

bath, is six metres in diameter, and contains twenty-five seats. He also discovered another bath at Kôm el-Wasat near Kôm el-Ahmar, markaz Abu-Hommos. It consists of two circular halls of eighteen seats each; cf. p. 28.

The fourth bath was discovered in march 1948 by M. J. Schwartz and M. Wild at Qasr Qarûn, Shawashna markaz Ibshawai ابشواى in the Fayûm. Its circular hall is small and contains ten seats; this Hammam will, as I understand, soon be published.

⁽⁴⁾ PAUTY, *loc. cit.*, p. 10.

the steam bath as known in every part of Greece for provoking perspiration; it was the Greeks who introduced it to the Romans; *tholos*, *Θόλος* in fact, means a circular construction with cupola, a form of bath known in Athens, as synonymous to the laconicum. "Il est probable que pour cette partie des bains comme pour toutes les autres, les accroissements successifs puis la distribution des diverses opérations dans les locaux séparés se firent non par un progrès régulier, mais inégal, proportionné aux exigences de ceux qui possédaient ou fréquentaient les bains" (1).

The texts do not mention the composition of Greek bathrooms precisely in Egypt, but at least they prove their existence. The technical terms which the texts mention, refer to the different parts of the bathrooms: the *Θόλος*, a circular room with the cupola sometimes containing basins and water tubs *i. e.*, *πύελος*; then the *παραθόλια* which Calderini (2) explains as corridors round the caldarium and communicating with the numerous porticos; the frigidarium *ψυχροφόρος*; the room for playing balls *σφαιριστήριον* and the hypocaust *ὑπόκαυστον* and the rooms for the waterworks *μηχανοστάσιον*, etc. The texts mention also that the bathrooms had their supply of wood; they also used straw and stubble. The Emperor Caracalla forbade by law the rural population to enter Alexandria except pork-merchants and sailors of the Nile, those who brought the stubble for heating the baths (3).

The papyri found in Egypt during the Greek period attest that the Greeks during the IIIrd Century B. C. had *βαλανεία*, *balaneia* or public baths, single and double for women and men. It seems very probable that the *Θόλος tholos* was the room of the hot air or the *laconicum*; some of them contain tubs or tanks for hot water *πύελος (pyelos)*. These texts throw light upon using the bath. A Greek went first into the *tholos*, then to the *caldarium* to be washed. The posts of workers in the bath still exist to-day (the lawangui *لوانجى*).

(1) DAREMBERG et SAGLIO, *loc. cit.*;

BALNEUM, p. 650.

(2) *Bagni pubblici nell'Egitto greco-romano*, in the *Rendiconti del Real Istituto Lombardo di Scienze e Lettere*, 1919,

p. 297-331.

(3) P. GIessen, 40, II, 1. 29, cf. also *Oxyrhynchus Pap.*, XII, n° 1430, l. 12-14.

M. O. Guéraud in his (*Ἐντεύξεις*) (1) published two papyri giving interesting details of the public bath during the IIIrd century B. C.

The first papyrus (2), dating from the first year of Philopator is a request of a woman called Philista, daughter of Lysias, dwelling at Trikomia in the Fayûm. She complains of the boy attached to the bath *παραχύτης*, (*parachytes*) called Pétéchôn. I think that this job (*παραχύτης*) is that of the modern lawangui *لوانجى* of which speaks Pauty. M. O. Guéraud explains his function by saying, "en apportant des brocs d'eau et en les versant sur les baigneurs pour faire partir le savon, Pétéchon remplit son rôle de (*παραχύτης*)" (3). Here the text refers to a public bath composed of two parts (for women and men), in the village Trikomia of the Fayûm, as the woman says she was in the *tholos* of women (*ἐν τῷ γυναικείῳ Θόλῳ*). The more interesting point to note is the method of bathing. First she says that she was in the *tholos*; then she went out to wash herself *ἐγβεσηκίας μου ὥστε ζηήσασθαι*, when the boy brought and poured upon her full jugs of hot water and burnt her stomach and the left thigh down to the knee exposing her life to danger (recto first year tybi 7th) *λουομένης γάρ μου ἐν τῷ βαλανείῳ τῷ ἐν τῇ προειρημένῃ κώμῃ (Trikomia in Fayoum) παραχέων ἐν τῷ γυναικείῳ Θόλῳ, ἐγβεσηκίας μου ὥστε ζηήσασθαι, εἰσενέγκας θερμοῦ τὰς ἀρυταίνας κα(σ)ισκεδάσέν μου κ(. . . .) καὶ κατέκαυσεν τὴν τε κοιλίαν καὶ τὸν ἀριστερὸν μηρὸν ἕως τοῦ γόνατος ὥστε καὶ κινδυνεύειν με . . . [Recto, ἔτους α τῷβι ξ] . . .*

The second papyrus (4), dating from the same year, is a quarrel between two women. In the first year of Philopator, a woman called Thamounis, complains of another woman called Thothortais. The text mentions another public bath composed of two parts at Oxyrhynchus in the Arsinoïte Nome, where the accused woman, found her bathing in a tank in the *tholos* of women and wanted to get her out of it. . . . *καὶ καταλαβοῦσά με λουομένην ἐν πύελῳ ἐν τῷ γυναικείῳ Θόλῳ ἐξέβαλλέν με ἐκ τῆς πύελου . . .*

This text gives us details of the *tholos* or laconicum containing basins

(1) *Publications de la Société Royale égyptienne de Papyrologie*, 1931.

(2) *Ibid.*, n° 82, p. 198 sq.

(3) O. GUÉRAUD, *Ἐντεύξεις*, p. 200, n. 3.

(4) *Ibid.*, n° 83, p. 202 sq.

of hot water, confirming the theory that in the Orient, people were fond of the steam bath of vapour and not the hot dry air of the laconicum of the Occident. Sometimes the caldarium, was at the same time the *tholos* because of its extremely high temperature.

Balneum.—The Romans took the habit of bathing from the Greeks, especially the hot baths, which were so welcome that they even influenced the Roman social customs. The Romans considered baths as being a hygienic measure. At the same time they exaggerated the idea, and by wasting much time in the luxury of bathing, justified the opposition of moralists against such mixed establishments.

Eventually a custom forbade the entry of a father with his adolescent son. Laws forbidding mixed baths were promulgated by many of the emperors, including Hadrian, Antonius Pius, Alexander Severus⁽¹⁾. Justinian went so far as to prohibit a man entering with a woman, and divorced who ever infringed this law, as it was considered that such abuses would have disastrous results.

During the Republic, people bathed every week; baths existed in private houses, but they were poorly fitted and the water was not filtered.

Public baths appear in Rome after the second Punic War (219-201 B. C.)⁽²⁾. Under the Empire there was a great number of them, and even the smallest villages had an establishment. The public bath was far more in evidence in Roman life. Under Constantine there were in Rome not less than 856 public baths, besides the *Thermæ* which were great houses with facilities of every kind of recreation as well as bathing⁽³⁾.

As in Greece, these baths were devoted to physical training. Eventually they were divided into two parts, one for men and one for women. The two sections, though separate, had a common furnace to economise fuel. Sometimes the two parts were entirely separated from each other, with a special furnace, as in the bath found at Kôm el-Ahmar. Each of them had its own entrance leading to a colonnaded court with

⁽¹⁾ LAVEDANT, *Dictionnaire des Antiquités grecques et romaines* : BAINS.

⁽²⁾ LAURANT, *Manuel des études grecques*

et latines, IV, p. 426-427 and LAVEDANT, *op. cit.*, BAINS.

⁽³⁾ *Guide of the British Museum*, p. 111.

trees and flowers, to which a rest-room opened. Close to this room a passage led to a cloak-room. Next came the hot bath, then the tepid, and finally the cold one. All the rooms were paved with mosaics of various styles, and on the walls were painted scenes and figures in relief. The women's section was not provided with a gymnasium. Some baths were for both sexes, open to each at special hours; thus, baths had a great vogue at the time of the destruction of Pompeii. Pompey introduced as a cure advised by Asclepiades, cold baths in winter, and during the reign of Nero young men were seen bathing in the Tiber. Seneca boasted of doing this at the beginning of January⁽¹⁾.

The Romans were accustomed to take their bath at 3 o'clock in the afternoon, at which time the opening of the establishment was announced by sounding a gong. The closing-time was at nightfall.

Wealthy people bathed at home according to their means and preferences. Sometimes they took the bath at the usual time before meals and sometimes in the evening.

In some places a lamp with a single wick was found, in others, with seven wicks; some of the lamps at Kôm el-Ahmar had two wicks and one of them had twelve. Some people for instance, the Roman Emperors, Commodus and Gallianus took eight baths a day. They turned the bath into a home, where they ate and drank, and only went out for gaming. This was one of the greatest reasons of the decadence of the Empire⁽²⁾.

In fact the baths which were originally very simple, gradually became more and more luxurious in the 11th and 12th centuries of our era. At the time of Diocletianus and Caracalla, they contained in addition to the principal apartments, a library, a reading-room, a "lounge", a gymnasium, an ephebeum, a theatre, and a music hall⁽³⁾, which surrounded the bath. The size of the bath varied according to the locality. At Rome which was thickly populated, these annexes were well organised and arranged to suit the cultivated taste of their frequenters. In smaller towns, baths were simpler, while in the villages they had no annexes at all. Men and youths used the baths for passing the time, discussing subjects of

⁽¹⁾ LAVEDANT, *op. cit.*, BAINS. — ⁽²⁾ LAVEDANT, *ibid.* — ⁽³⁾ As the bath of Serdjella. Cf. *infra*.

general or personal interest, and physical exercises. But things went so far that baths became the resort of those who had nothing better to do. Many particular houses had baths, which we know either by the description of the authors or by excavation ⁽¹⁾.

In one of his letters Pliny described the bath in one of his villas, saying that it comprised a cloak-room, hot, tepid and cold baths, a massage room, and certain annexes which were used after bathing and where ball-games were played. Seneca remarks when describing the modest bath of Scipio Africanus "How dares a man to bathe in that modest bath. One feels poverty and misery if walls do not sparkle with precious stones, if the marble of Alexandria is not mingled with inlays of Nicomidia, if the mosaics do not compete with paintings, if the roof is not incrustated with various coloured glass, if bath-tubs are not carved from stone of Thasos, if water does not flow from silver taps. I speak only of baths of Plebeians. As for those of freemen, what an array of statues and of columns, with which to support nothing and which are there as vain ornaments because they cost much money. We have reached such a degree of delicacy that we do not need more to set foot but on precious stones".

From what has been said it will be obvious that baths played a principal part in daily life, but they also formed part of a careful medical system. ⁽²⁾

The bather remained in the hot room (*laconicum*) for a definite time to cause profuse perspiration. He plunged into warm water, in the *caldarium* to clean himself of perspiration and impurities. He bathed in cold water, in the *frigidarium* to restore his energies and close the pores of the skin. Finally a massage in the *elæathesium* with oil and perfume induced a reaction. The mode of bathing naturally varied considerably with the constitution and test of the individual but was generally a very elaborate affair. Celsus who wrote on the art of medicine probably early in the 1st century A. D., recommended the bather first to go into the moderately heated room (*tepidarium*) and perspire slightly, then to anoint himself and to pass into the hot air room (*laconicum*).

⁽¹⁾ DAREMBERG et SAGLIO, *Dictionnaire des Antiquités grecques et romaines* and LAVEDANT, *op. cit.* BALNEUM and THERMÆ.

⁽²⁾ For other descriptions of those luxurious baths, cf. LAVEDANT, *op. cit.*, BAIN.

After perspiring there, he was to pour hot, warm and cold water alternately over his head, then to scrape himself with the strigil ⁽¹⁾ and finally to anoint himself. The last was probably a precaution against taking cold ⁽²⁾. This is the mode of bathing in modern baths in Egypt except that there is no *frigidarium* and such were the main treatments undergone by the bather. They resemble the new method used by the people now. The whole process, in fact, had an excellent effect and kept the bather clean and healthy.

A consideration of these various stages leads us to presume that a bath contained special rooms for each process. First, there was a vapour-bath (*laconicum*). Then there was a room with a large amount of hot water (*caldarium*), a transitional room where the air was of moderate heat (*tepidarium*). Cagnat and Chapot, quoting Celsus (*De Med.*, I, 4), say about the *tepidarium*: "C'est là que devaient s'arrêter les gens à tête faible sans quitter leurs vêtements jusqu'à ce qu'une légère transpiration s'établisse, leur permettant de se soumettre ensuite impunément à une température élevée" ⁽³⁾. Then a cold room (*frigidarium*) whence one went to the chamber for massages (*elæathesium*). Then the very important part of the bath called the *hypocaust* was immediately under the hot bath, providing it with heat ⁽⁴⁾. "Le bain normal et complet à Rome comme en Grèce jusqu'à la fin des temps anciens, se composait essentiellement de trois actes à savoir, l'étuve, le bain d'eau chaude et le bain d'eau froide; à quoi il faut en ajouter un quatrième, qui, pour ne pas faire partie du bain à proprement parler, n'en était pas moins jugé indispensable, l'onction d'huile accompagnée de frictions, qui précédait ou suivait les autres opérations".

The three principal parts of the bath are therefore:

Frigidarium, τὸ ψυχροφόρος, contains one or two piscinæ of cold water.

⁽¹⁾ The strigil *στραγγίς* or *στλεγγίς* or *στελγίς*, is a curved piece of metal, usually bronze, but sometimes iron employed by athletes for removing dust and oil after exercise, and by bathers for scraping away perspiration and dirt. For other implements carried

by bathers, cf. *Guide*, p. 112 sqq.

⁽²⁾ *Guide*, p. 172.

⁽³⁾ CAGNAT et CHAPOT, *Manuel d'Archéologie romaine*, I, p. 209.

⁽⁴⁾ DAREMBERG et SAGLIO, *op. cit.*, p. 653.

It was in the open air in Rome. In Africa it had usually a cupola to keep its coolness by avoiding the direct heat of the sun.

Tepidarium : usually without any basins. Its temperature was moderate, somewhat warm. It was the principal room in Rome. In hot places especially in Oriental countries it was not very important ⁽¹⁾.

Caldarium : The room of hot bath was completed by the *laconicum* or the steam bath ⁽²⁾. It was always a circular room with a cupola. In the *caldarium* were piscinæ and basins for the shower, and a descensio, or piscina with steps. For the ventilation of these rooms Vitruve mentions the system : “Une ouverture devra être aménagée au centre de la coupole et de cette ouverture pendra un bouclier d’airain qu’on montera et qu’on descendra.”

These two rooms are the most important of the bath especially in Africa and Asia. In the Orient, people are generally fond of a steam bath. The ruins of the bath of Serdjella prove that one third of that bath consisted of the *caldarium* and its appertenances. The *caldarium* and *laconicum* were near each other because the heat of the *caldarium* was introduced into the *laconicum*, and then into the *tepidarium* in order to warm it ⁽³⁾.

Sometimes we found that the *laconicum* had a piscina of hot water in order to increase the perspiration. This was proved by the 11th century papyrus published by M. Guéraud ⁽⁴⁾. At Kôm el-Ahmar there are traces of a basin in the *laconicum* ⁽⁵⁾. This confirms once more that in the Orient, people were rather fond of the steam bath than of the hot dry air one, of the Occident ; so the *caldarium* was sometimes used as *laconicum*.

The whole bath was richly decorated with rich ornaments : frescos, mosaics ⁽⁶⁾, plates of polychrome, marble, statues... etc. Fragments of

⁽¹⁾ CAGNAT et CHAPOT, *op. cit.*, I, p. 223-225, also cf. *infra*.

⁽²⁾ DAREMBERG et SAGLIO, *op. cit.*, for different opinions, p. 657.

⁽³⁾ CAGNAT et CHAPOT, *op. cit.*, I, p. 216, the plate of the Therae of Caracalla (fig. 112).

⁽⁴⁾ Cf. *supra*.

⁽⁵⁾ Cf. *infra*.

⁽⁶⁾ A scheme imposed upon a mosaicist to make the pavement of a tholos of men and a tholos of women in a bath at Philadelphia in the Fayûm, in the 11th century B. C., is mentioned in the Zenon Papyrus n° 59665.

pavement mosaics of different styles were found in nearly all ancient baths of Egypt. An interesting mosaic was found in the public bath at Sheikh Zouïd near el-'Arish. “La salle (F) représente les restes du *frigidarium* orné de mosaïques, dessins géométriques en noir sur fond

blanc, parmi lesquelles se trouvait la mosaïque à inscription”.

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M. J. Clédat says that this inscription shows that the bath was a public one. Then he says : “C’est une annonce de bienvenue qui

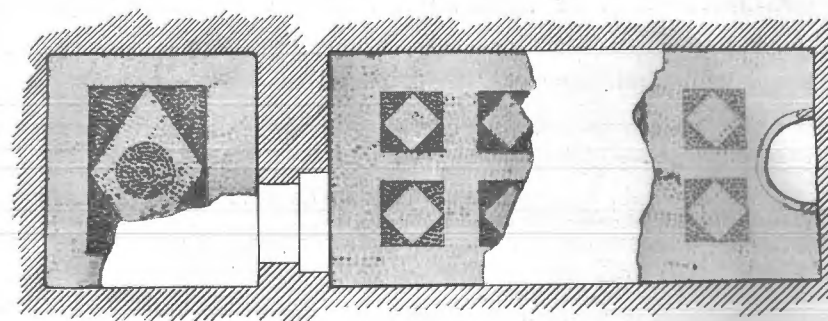


Fig. 1. — Mosaic on the floor of the entrance of the apodeterion of 2nd bath (Kôm el-Ahmar).

correspond exactement au (*Bene laves*) “Bon bain” lu sur une mosaïque d’Algérie et trouvé également dans des bains ⁽¹⁾.”

In the *Thermae* of Kôm el-Ahmar, the entrance and the *apodyterion* of the second part of the bath were paved with a mosaic of marble, decorated with geometric designs of different colours (fig. 1). This is the only mosaic which remains to-day. In the other rooms, pavements were removed, and only traces of small fragments were found ; traces of mosaics were also found ⁽²⁾ in the eastern bath. The bath of Sakha had pavements of mosaics too. They are kept in

⁽¹⁾ GSELL, *Les monuments antiques d’Algérie*, I, p. 231 in *Annales du Service des Ant.*, XV, *Fouilles de Sheikh Zouïd*, 1913, p. 31 sqq. and n. 1.

⁽²⁾ For the mosaic of modern Arabic baths, cf. PAUTY, *Les Hammames du Caire*.

the Museum of Alexandria. Some of them are still in the Kôm in the tomb of Sheikh Tag el-Dîn, which was built upon a part of the Hammam.

At Hermopolis (*Ashmunein* اشمونين) a series of baths (about 15) was discovered. Among them, eight circular baths were in a good state. They were public baths, belonging to the 11th century A. D. In bath No. 3 the bath-room was paved with mosaic of four colours⁽¹⁾.

At Kôm el-Ahmar about 18 heads of different deities such as Zeus, Eros, Dionysos and others were discovered. Some of them are of plaster, others of alabaster. Among them was a small head of Sarapis of lime-stone. Five other heads of marble are kept in the Museum of Alexandria. Behind these different heads there are traces of large pieces of bricks, showing that they were attached to the walls as a sort of decoration in the different rooms of the bath.

In order to obtain the necessary heat of the *caldarium*, the *laconicum* and their annexes the hypocaust⁽²⁾ was introduced. Pauty⁽³⁾ says that the furnace under the ground and the radiation of the hot air through tubes in the wall is an invention of the Greeks.

This hypocaust was developed by the invention of the system of the *suspensuræ* by Sergius Orata, a contemporary of Cicero. This system is described as follows by Vitruve who says "Le sol devra être carrelé en tuiles d'un pied et demi, et disposé en pente vers la chambre de chauffe, de telle sorte qu'une balle qui serait lancée ne puisse demeurer en place à l'intérieur mais qu'elle revienne d'elle-même en arrière jusqu'au foyer. Ainsi la flamme circulera plus facilement sur le radiateur suspendu. Par-dessus ce carrelage on construira en briques de deux tiers de pied des piliers disposés à telle distance l'un de l'autre

⁽¹⁾ Cf. *Deutsche Hermopolis-Expedition*, 1931-1932. K. BITTEL, p. 4 and taf. XVIII a.

⁽²⁾ The Papyri mention it in the hot part of the bath : ὑποκαύσεως and ὑποκαυστήριον; *Pap. Lond.*, 1, 121 sqq.; εἰς ὑποκαυστήριον βαλάνειον. Also *B. G. U.*, I, 14, III, 17; εἰς

ὑποκαύστον καμίνου λούτρων. Cf. F. LUCKHARD, *Das Privathaus im ptolemäischen und römischen Ägypten*, p. 96. Also DAREMBERG, SAGLIO and LAVEDANT, *ibid.* : Hypocauste.

⁽³⁾ PAUTY, *Hammams du Caire*, p. 10. Cf. also *supra*.

que des briques puissent reposer sur quatre de ces piliers. Les dits piliers auront une hauteur de deux pieds. Par-dessus, on posera des briques de deux pieds, destinées à soutenir le pavement de la salle"⁽¹⁾. These pillars as described by Vitruve, were found in the ruins of the

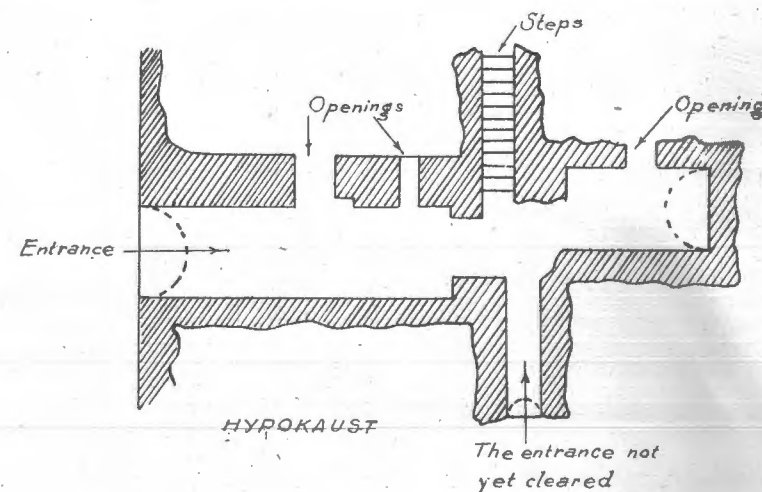


Fig. 2. — Thermæ of Kôm el-Ahmar.

Thermæ of Timgad⁽²⁾. Their existence proves that the bath is a purely Roman one.

There are many examples of *suspensuræ* in Egypt. Traces of them were found at Kôm el-Ahmar. In the bath of Kôm el-Doshéh there is a *suspensura* under the *caldarium* and the *laconicum*⁽³⁾. In the *Thermæ* of Kôm el-Ahmar there is another way for heating the different rooms of baths besides the *suspensura*. This is the arched corridor of heat, which goes under the rooms providing them with heat through openings in its ceiling. An example was found in the *Thermæ* of Kôm el-Ahmar (fig. 2). Another one was found

⁽¹⁾ LAVEDANT, *ibid.*, Bain; also DAREMBERG et SAGLIO, *ibid.*; *Thermæ*, by BENOIT and PAUTY, *ibid.*, p. 15, n. 1 sqq. and CAGNAT et CHAPOT, *op. cit.*, I, p. 219.

⁽²⁾ CAGNAT et CHAPOT, *ibid.*, p. 218, fig. 113.

⁽³⁾ *Annales du Service des Ant.*, t. XII, p. 182, fig. 20.

in Mena Abou Karm⁽¹⁾, and in the private bath found at Edfu⁽²⁾.

This suspended pavement was strengthened with cement and used as a bed for the mosaic of the upper room. This system was developed by the radiation of the walls. The air was driven between the walls which

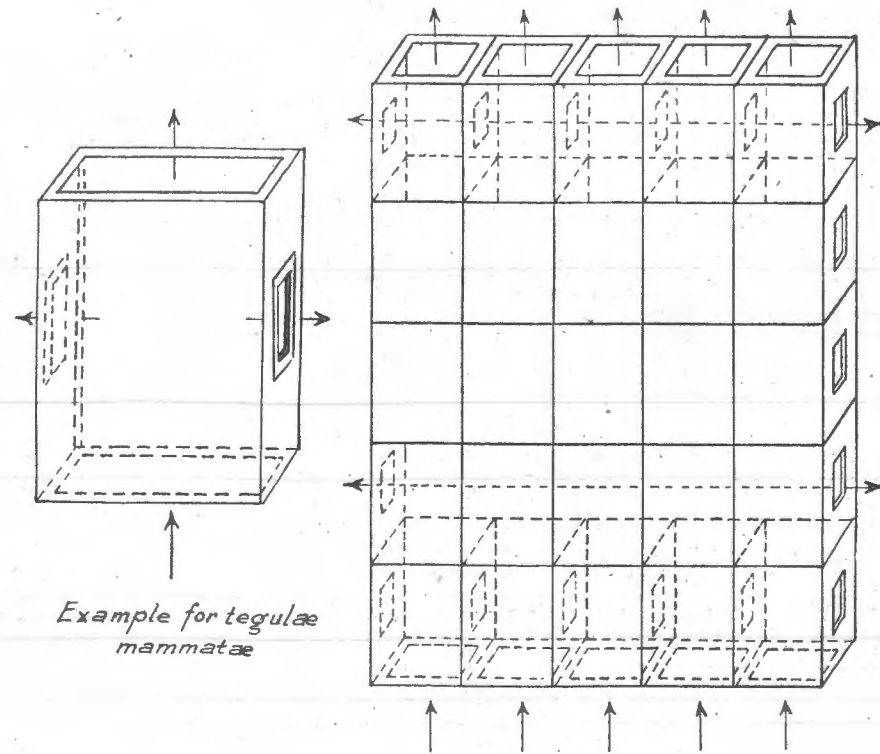


Fig. 3. — Specimen of heating system.

are doubled by plates of brick of special form called *tegulae marmatae*. By that way the hot air reached the cupola of the upper room (fig. 3).

A good example of these heating tubes was found in the Hammam Dosheh. Daressy describes them as follows : "Dans les murs, on avait

⁽¹⁾ K. M. KAUFMANN, *Menastadt*, p. 133, taf. 46.

1937, p. 68-70 and fig. 30, also cf. *infra*.

⁽²⁾ *Fouilles franco-polon., Tell Edfou*,

ménagé des sortes de placards de 0 m. 15 à 0 m. 18 de profondeur dans lesquels étaient superposés des tuyaux rectangulaires en terre cuite de 0 m. 10 à 0 m. 14 de côté et 22,5 mm. de hauteur, avec 15 mm. d'épaisseur rangés à côté les uns des autres en quatre à huit colonnes suivant l'espace disponible et qui permettaient à la chaleur de monter dans les salles. Un trou de 4 cent. à 8 cent. était percé au milieu des côtés latéraux des tuyaux, et établissait une communication entre eux. Sur la face antérieure une couche de chaux et de plâtre était étendue uniformément sur les parties adjacentes des murs si bien que cette canalisation était indivisible⁽¹⁾. At Kôm el-Ahmar there are places for these tubes in the walls of the *laconicum* and the *caldarium*⁽²⁾.

The *suspensura* was heated by numerous furnaces. In the bath of Timgad there were 10 furnaces, including two large ones. Upon one of these, there was a cylindric boiler of bronze which furnishes the *Thermae* with hot water. Two other boilers stood adjoining. One was upon the furnace directly, whilst the other two were beside it. Vitruvius explains them saying : "Les chaudières doivent être groupées au nombre de trois, une pour l'eau chaude, la deuxième pour la tiède, la troisième pour la froide ; et elles doivent être installées de telle sorte que autant d'eau aura passée de la chaudière d'eau tiède à la chaudière de l'eau chaude, autant devra en passer de la chaudière d'eau froide dans celle d'eau tiède⁽³⁾."

These public baths were provided with water by the state. Water was conveyed to them by the public aqueducts from the "water tower" established by the state or the city. Vitruvius speaking of the Aqueducts says : "L'aqueduc étant parvenu aux murailles de la ville, on construira un château d'eau auquel sera joint "pour recueillir l'eau" un triple émissaire. Au château seront adaptés trois tuyaux, également répartis entre les trois réceptacles de telle sorte que le trop-plein des deux extrêmes se déverse dans celui du milieu. Des tuyaux ajustés à celui-ci se dirigeront

⁽¹⁾ *Annales du Service des Ant.*, vol. XII, p. 179.

⁽²⁾ Another excellent example of these tubes was found in other baths, cf. *Annales du Service des Antiquités*, vol. XV; *Fouilles à Sheikh Zouïde* (1913),

p. 34, fig. 3 (cf. fig. 3). For other types of *tegulae marmatae*, cf. CAGNAT et CHAPOT, *op. cit.*, p. 220, fig. 115.

⁽³⁾ CAGNAT et CHAPOT, *op. cit.*, t. I, p. 223.

vers toutes les fontaines et tous les bassins ; l'un des deux autres alimentera les bains, ce qui assurera un revenu annuel au peuple ; et le troisième les maisons privées (1).”

At Hermopolis a great *château d'eau* (Wasserchloss) was found near the baths, and also a tube of pottery for the fresh water under the floor of the street of Hadrian (cf. *infra*).

In Rome, public baths appeared from the time of Cato and Scipio and were controlled by the chief of the baths (*Balneator*, βαλανεύς or λοτροχόος). These were under the control of the ediles. The bath was an official department of the state, or the city. Some of them were built and offered for the state by the rich, as in the case of the bath of Serdjella in Syria which was offered to the city by Julianus and his wife. But the first establishments in Rome belonged to the elite. The owners were often among the citizen class. “Le local est affermé à un baigneur *balneator* et ouvert au public. . . mais la plupart des établissements publics appartiennent aux villes ou à l'état (2).”

In Egypt public baths were the property of the state and were controlled by the official employees. During the Empire the prefects and the strategus controlled them. In the metropolis the municipal authorities, the college of archontes and the gymnasiarchos, controlled them during the 1st and the 2nd centuries. During the 3rd century they were controlled by the curie and its chief (prytane). In the 4th century the administrators were the *logistes* or the *curator civitatis*. The tax-payers paid the government (βαλανεῖον or ὑπερβαλανεῖον), a tax for the maintenance of public baths, and for providing baths with water by the public aqueducts.

There are many receipts for such taxes on the ostraca found in Egypt. Many of them were found in the bath of Edfu (3). We do not know how the baths were administered exactly. But we know that there was the tax (τριτηβαλανεῖον) which was a third of the revenue of the public bath paid to the government by the person in charge of the bath. The

(1) CAGNAT et CHAPOT, *op. cit.*, t. I, p. 99.

(2) LAVEDANT, *Bain* in *Dictionnaire des Antiquités grecques et romaines*. For various establishments in the Occident

cf. CAGNAT et CHAPOT, *op. cit.*, I, p. 209 sqq. and LAVEDANT, DAREMBERG and SAGLIO, *op. cit.*; *Balneum et Thermæ*.

(3) *Fouilles franco-polonaises, Tell Edfou*, 1937, p. 149 sqq.

state then seems to have enjoyed a sort of monopoly. The custom was not the same for all the baths. During the Byzantine period wealthy people began to establish and administer public baths (4).

This did not obviate the payment of a fee called *balnea* or *meritoria* (ἐπιλουτρον) which was about a quadrans or a quarter of an aes = the δίσχαλον of Greek cities for men. As this quadrans was the fee for admittance in the bath at Rome during the last period of the Republic and the beginning of the Empire, we find the expression : *quadrante lavari* (5). But women paid a little more than that, and children were free of any charge.

Roman private baths as well as Greek ones were originally primitive and uncomfortable. They consisted only of two narrow rooms besides the kitchen. They were later greatly improved. They grew larger and more complete. The bath room of the villa of Basconale affords a striking example. At the northern corner of it there is a group of rooms which is undoubtedly the bath. One of these rooms is the kitchen where there is the furnace ; it leads into another room which is probably a hall. To the left was the *tepidarium*, then a third one, the *caldarium*. In the hemispheric part of the latter, there was a basin of marble. Facing this basin was a piscina built of bricks. The furnace had a boiler to provide the *caldarium*, which was behind it, with hot water (6).

Roman private baths show a very great development in Egypt. The one discovered at Edfu by Mr. Michalowski, confirms it. In the Kôm Central of Edfu there were two baths, a public one in the south, and a private one, as Mr. Michalowski says : “Il est tout à fait évident, vu les dimensions et le caractère particulier des pièces, que notre bain a appartenu à une demeure privée. On sait bien que les bains publics dans l'Égypte romaine étaient placés dans des salles plus grandes et

(4) P. JOUGUET in PAUTY, *op. cit.*, p. 13. For this question, cf. WILCKEN, *Griechische Ostraka*, I, 165 and GRENFELL and HUNT, *Pap. Hibeh*, 108 also JOUGUET, *Bibl. de l'École des Hautes Études*, p. 230 ; CALDERINI, *op. cit.*, p. 321 sqq.

(5) In CICERO, *Pro-Cælio*, XXVI, 62 ;

HORACE, *Lat.*, I, 3, 137 ; JUVENAL, VI, 447, cf. also BABELON, *Traité des Monnaies grecques et romaines*, I, t. I, p. 606 and *Guide of the Brit. Mus.*, p. 111.

(6) CAGNAT et CHAPOT, *op. cit.*, I, p. 210-212. For luxurious private baths, cf. *supra*.

avaient l'accès moins compliqué qu'ici. Ils contenaient aussi un nombre plus grand de baignoires"⁽¹⁾. This bath consisted of a *caldarium* containing a large water tub and two "bains de pieds ovales, en forme de fauteuil". On every basin of them is a niche for the lamp or the toilette objects. In that room there are traces showing that it communicated with the furnace of the bath by means of a conduit built of bricks through which the hot air heats the room. There was also a reservoir of water in the *caldarium*. In addition to the furnace there were four rooms in the bath. But the arrangement of the whole was so complicated that Mr. Michalowski says : "ajoutons encore qu'il nous a paru inutile d'insister dans l'interprétation de notre monument sur une disposition de pièces qui correspondrait au *tepidarium*, *caldarium* et *frigidarium*, disposition commune de bains romains. D'ailleurs, on y chercherait en vain des arrangements conformes à ces installations"⁽²⁾.

Another small bath which is, I believe, private, was found at Sakha (cf. *infra*). In the Occident, as we have seen, writers and authors often quoted and described private baths. But in Egypt documents do not refer to them; they all deal with public baths, as F. Lockhardt observed "die Badeanlagen habe ich in den Urkunden nicht bemerkt, wohl das öffentliche βαλανείον"⁽³⁾.

BATHS IN EGYPT.

It is evident that the Greeks were the first to have introduced and spread baths in Egypt and then came the Romans who extended the practice still more. From the third century B. C. until the Arab conquest of Egypt, public baths existed throughout Egypt, even in the smallest village. In the cities, baths were numerous as for example

⁽¹⁾ *Fouilles franco-polonaises, Tell Edfou* (I. F. A. O.). Le Caire, 1937, p. 74, n. 1 and BRECCIA, *B. S. A.*, 1923, p. 142 sqq.

⁽²⁾ *Fouilles franco-polonaises*, p. 74,

for the plan of the bath, cf. p. 67, fig. 30.

⁽³⁾ *Das Privathaus im ptolemäischen und römischen Ägypten*, p. 96.

in the Oxyrhynchos nome the Thermæ of Hadrian, and of Antonius Pius, then other Thermæ of Hadrian in Hermopolis. Some baths were annexed to the gymnasium⁽¹⁾, some to the temples, and others were special baths for the soldiers⁽²⁾.

Egypt had every sort of hammam, private and public—single and double for men and women. The baths found in Egypt during the various excavations confirm this beyond doubt⁽³⁾. The most complete hammams found, were some Roman ones which were remarkable examples illustrating all the ancient baths of Egypt.

Naturally there must have been an obvious difference between baths in the Occident and those in the Orient. These differences were due first to the climate and then to the customs of the people⁽⁴⁾. Certain essential parts or rooms which we find in the baths of the Occident, do not exist in the Orient because they are needless. "En Orient, où les habitants ont toujours eu le goût des bains de vapeur, ce sont les étuves qui prédominent; le *tepidarium* dont on ne sent pas le besoin sous un climat brûlant, ne tient presque aucune place"⁽⁵⁾. But the *tepidarium* was still found in some baths of Egypt even in the later Arabic baths, although it lost its importance. It became a very small room.

In the Orient the *ῥόλος* or *laconicum* contained tubs of hot water which spreads its damp heat to the small *tepidarium*. The boiler and its system was just the same in the Roman baths as mentioned before. The same applies to the *apodyterion* and the lavatory. The bath of Serdjella, was possibly the point of transition between Oriental and Occidental baths, and was considered to be the model of Oriental baths. De Vogüé⁽⁶⁾ gave the plan of it, showing every difference between the two typical baths of the Occident and the Orient.

In the Occident the most important room in the bath was the *laconicum*,

⁽¹⁾ *Pap. Lond.*, III, 1166, 5 (S. 104/105), *Hermop.*, 42 n. « εἰς τὸ ἐν [τῷ] γυμ[νασί]ῳ [βα]λανείον τὰ αὐτάρκη καθύματα », cf. also F. LUCKHARDT, *ibid.*, p. 96.

⁽²⁾ PAUTY, *op. cit.*, p. 11.

⁽³⁾ Cf. *List of Hammams found in*

Egypt, infra.

⁽⁴⁾ Cf. *Tepidarium and Laconicum*; *supra*.

⁽⁵⁾ CAGNAT et CHAPOT, *op. cit.*, I, p. 225.

⁽⁶⁾ DE VOGÜÉ, *Syrie centrale, architecture civile et religieuse*, pl. LV-LVII, also PAUTY, *ibid.*, p. 14-15, fig. 1.

but people used to remain in it for a very short time. Naturally the room where the clients could assemble was the *tepidarium* because of its moderate temperature. This must have been the centre of the installation. Also, in the *apodyterion* people used to stay a very short time only to take off their clothes. But the case was different in the Orient. The hammam of Serdjella shows that the *apodyterion* was the centre of the bath. It was a great rectangular hall, a part of which was furnished with seats for the clients to rest after the bath and a rostrum limited with four columns for the musicians⁽¹⁾; adjoining to it was a small *tepidarium*, and then a rectangular *caldarium*, which was at the same time the *laconicum*. But there was no *frigidarium*.

In Egypt the existence of a *frigidarium* persisted very late, even in the Arabic period. The heat ceased to be generated by the dry hot air; hot water was used instead. This led to the first evolution of the *laconicum*, which was replaced by the *maghtas* (مغطيس)⁽²⁾ in the Arabic baths. Then the hypocaust ceased to be constructed under the heated part of the bath, the *caldarium* and the *laconicum*. The boiler of hot water and the furnaces were situated near the *caldarium* to provide it with hot water.

The Byzantine baths as represented by the baths of Zeuxippe (which were built by Septimus Severus, and restored by Constantine in Constantinople), were on the same basis as the Roman baths⁽³⁾. Texier in his *Ouvrage sur l'Architecture byzantine* believes that the mixed hammam of Mohamed II at Constantinople built in xvth century (called Tchoukour), was a reconstruction on the Zeuxippe principle.

This bath has the *caldarium* in the centre of the plan. It has niches in its sides, with other rooms around it. But Pauty hesitates to admit this conjecture, saying that baths in the xvth century represent all the innovations of the Moslems of Persia and Egypt in the Orient⁽⁴⁾.

At Serdjella and in some baths of north Africa the rooms were placed one beside the other instead of around the centre. Climate and local

⁽¹⁾ PAUTY, *ibid.*, p. 15, fig. 1.

⁽²⁾ Cf. *infra*.

⁽³⁾ Cf. the Plan in Général DE BEYLIE, *L'habitation byzantine*, p. 103 et plan

p. 104.

⁽⁴⁾ For that question cf. PAUTY, *op. cit.*, p. 16 and n. 1.

manners in the Orient determined the final plan of the *Thermæ* during the first centuries of the Hidjra.

Two baths afford an example of that period, Quṣair el-'Amra and As-sarakh in Syria. They consisted of two parts: the first is the *apodyterion* a hall used essentially for taking off clothes and then for rest, also for the assembly and intimate rejoicings; the second part, consisted of the *tepidarium* and the *caldarium*⁽¹⁾. These two parts did not exist in Roman baths, but they appeared clearly at Serdjella. Then one passes to the real bath-room or hammam. The two above mentioned parts of the Oriental baths were developed as follows: ⁽²⁾ the *apodyterion* was enlarged, and divided by arches and vaults decorated with frescoes. It became a rich saloon⁽³⁾. Pauty gives the plan (No. 2) of Quṣair el-'Amra which he believes to be the typical oriental hammam of the beginning of the Islamic period, and that it served as a model. But, he adds, the bath of Serdjella was the starting point. "Nous n'y voyons pour notre part qu'un développement très normal, avec un luxe plus asiatique, de ce que nous donne Serdjella⁽⁴⁾."

The principal heated rooms of the hammam were arranged in the same way as in Roman baths. The *caldarium* in some baths of Syria has no *laconicum*, because their *caldarium* was of a very high temperature. But later the ancient *laconicum* reappeared in its Oriental last evolution. It became the *maghtas* (مغطيس) and was independent of the *caldarium*. It contains a large, very deep piscina, full of water which spread damp heat in all the bath. This new form of the *laconicum*, was the result of the Oriental taste of the people who were fond of steam-baths. These Arabic baths as well as the Roman baths, were richly decorated with every sort of ornamentation⁽⁵⁾.

⁽¹⁾ Cf. plan in PAUTY, *ibid.*, p. 18.

⁽²⁾ Different opinions in Captain CRESWELL, *Early Muslim Architecture*, chap. vi, p. 253-303.

⁽³⁾ Von BERCHEM, *J. des Sav.*, 1909, p. 406, observed for Kosair el-'Amra that the « combinaison d'un bain et d'un salon constituait comme une sorte

de pavillon de chasse ».

⁽⁴⁾ PAUTY, *op. cit.*, p. 20.

⁽⁵⁾ « En fait les auteurs, Maç'oudi (مسعودي) notamment, signalent bien des bains pourvus de fresques, ce qui est confirmé par Quṣair el-'Amra », WIET et HAUTEGŒUR, *Les mosquées du Caire*, p. 174.

It will be better to mention here a general description of the modern hammam which represents the final change affecting the bath in Egypt. Bathing in these different baths nowadays is still carried on in the way in which it was anciently established.

The hammam in Egypt has a small door of a special style denoting the hammam to the public eye. Entering by this door (if the bath is mixed there are two doors), one finds a corridor (دهليز, *dahliz*) leading into a hall sufficiently wide; this great hall is for taking off clothes; also it is a suitable place to stay in before or after the bath. This is the *apodyterion*. Near the door there is a small vestibule (بيت العلم, *beit el-Mo'alem*) for the manager (المعلم, *Mo'alem*) of the establishment. He greets the clients and takes from them all valuables: watches, money and different objects to keep, before taking off their clothes.

The centre of this hall forms another round hall called (المسلخ, *maslakh*) paved with mosaic and often provided with a silver fountain (فسقيه, *fasqieh*) and seats around it, one metre in height. (ايوان, *iwana*⁽¹⁾ or *mastaba*).

Some mattresses and carpets, sometimes small carpets for prayer (سجادة, *seguada*) are put on these seats. Sometimes they are separated by boards, thus forming small rooms. A niche (صفا, *soffa*) is provided in the walls of that *mastaba* for the shoes. This part is slightly lightened by a sky-light (شخشيخة, *shokhshekha*). From the *maslakh*, clients come out wrapped up in towels (فوطه, *futah*) and a *mahzam* (محزم) covering their bodies down to the knees to enter the real hammam.

The ancient constructor built the *maslakh* (مسلك) large enough, and gave it the appearance of a *qa'a* (قاعة) or hall. Columns were set up against the doors of the *Iwans* or sometimes around the *fasqieh* supporting the sky-light up in the roof.

Leaving the *maslakh* or the *apodyterion*, one passes through a narrow corridor led by the boy of the bath called *lawangui* (لوانجى); the job of *lawangui* existed from the 11th century B. C. In the corridor one finds the lavatories of the bath. The corridor leads into a hall called *bab-awal* (باب اول). Its temperature is warm. It is the old *tepidarium*. Some mattresses are arranged on a platform for bathers to rest some time

⁽¹⁾ PAUTY, pl. VII b and XI.

before the bath; this room is exactly the same as in the bath of Serdjella. Through a small door, the bather enters into the centre of the hammam, called (بيت الحرارة, *beit el-harara*) the old *caldarium*. The central part of the *caldarium* is called (صحن, *sahn*) and is covered with a cupola (قبه, *qubbah*). The floor is decorated with mosaic. In the middle of it is a mass of building, polygonal, covered with marble or mosaic, on which massages are being carried out by the *Mekaysati* (مكياتى). Three or four *iwans* (seats) exist also in the *sahn* the level of which is one step higher.

From the *beit el-harara* through a door, one passes into the *maghtas* (مغسطس)⁽¹⁾, the ancient *laconicum*. In the *caldarium* several doors reserved for soaping (الخلوة او الخفيه, *el-khelwa* or *el-hanafia*) the ancient *laeothesium*. The hammam always has one or two *maghtas*. This *maghtas* is higher than the level of the *caldarium* by four or five steps. It contains one or two *piscinae* with steps (*descensio*) full of hot water. Its temperature is so high that it sends its vapour and damp heat throughout the room. From this room heat spreads, lessening gradually through all the rooms until the *bab awal*. Some rooms of the *maghtas* have a cupola, others have elegant architecture with *voulette*, columns, and the floor is always decorated with a mosaic of marble. This *maghtas*, as has been said, represents the Oriental *laconicum*, and symbolises also the preference of Moslems for the steam bath.

The basins of the *maghtas* are provided with water by tubes coming through a hole near the cupola. These tubes bring the boiled water from *qayzan* (قيزان), or copper boilers, placed upon the furnace (محمى او جوره, *mehma* or *gora*) in the room of furnaces (بيت النار, *beit el-nar*). The boilers are three in number. Their system is the same as in the Roman baths. Double baths have the same notion for saving fuel as Greek and Roman baths by making one furnace (or *mehma*) for the two parts of the bath.

This is the last evolution of baths in Egypt. The description mentioned above for the actual bath as given by Pauty differs a little in some baths. The *apodyterion* is no more called *maslakh*. It is only a

⁽¹⁾ PAUTY, *op. cit.*, pl. VI, a-b.

cloak-room. The name *maslakh* is given to the furnace. The usual process of bathing to day is as follows : first the *tepidarium* (bab-awal); then one passes through the *caldarium* (beit el-hararah) to enter the *maghtas* or the *laconicum*. After having perspired he returns to the *caldarium*, where he is massaged. Then he goes to wash himself with soap in the *khelwa*.

Although the construction of baths in Egypt has undergone but little alteration from the third century B. C. until today, yet we observe that the essential way of bathing is the same.

The coins found at Kôm el-Ahmar illustrate nearly all the period during which this evolution took place, from 280 B. C. till the third century of the Hidjra (771 A. D.); and this suggests that the baths found in that Kôm existed continuously through that period.

KÔM EL-AHMAR.

Seventeen kilometres to the north-west of Damanhur (Hermopolis) and north of the property of Moghazy Pasha in the village of Bothontoway (بُشْنَتَوَيْ), is the ancient site of Kôm el-Ahmar, extending from 60 to 70 feddans. The excavations of the Antiquities Department have shown that there was a bathing establishment there. The clearance so far made has revealed the existence of large baths, and soundings in the parts not yet excavated show that there are some more. The work began in June 1942, but it was unfortunately too late to prevent the sebakh diggers from clearing away a large part of the antiquities. Only mutilated traces remained as evidence of the existence of the baths. If we consider the baths in the Kôm as characteristic of this period, we are led to the conclusion that all were constructed on the same scheme.

It was however not possible to discover the ancient name of the Kôm. But Mohamed Ramzi Bey wrote in *Al-Fath*, No. 806, p. 14, that it was a small ancient village belonging to Abu Homos (Behera). Its original name is mentioned in the *Kitab el-Qawanîn* by Ibn Mamati as Bothontouh. Also Ibn Dokmak mentions it in his two books *Al Intisarât* and *Qawanîn el-Dawawîn*. Then in *Tohfet al-Irshad* and in *Daftar al-Mokata'ât* or

al-Itizamât in the year 1079 of the Hidjra it was mentioned as Bothontoway; and in the year 1228 of the Hidjra it was spelled Bothontoway. This is its actual name.

بُشْنَتَوَيْ

بُشْنَتَوَيْ بِمَرَكِزِ أَبِي حِصِّ بِمَدِيرِيَةِ الْحَيْرَةِ. قَرْيَةٌ قَدِيمَةٌ اسْمُهَا الْأَصْلِيُّ «بُشْنَتَوَيْ» وَرَدَتْ بِهَذَا الْاسْمِ فِي كِتَابِ (الْقَوَانِينِ) لِابْنِ مَمَاتِي، وَفِي كِتَابِ (الْإِنْتِصَارَاتِ) لِابْنِ دِقْمَاقٍ وَفِي كِتَابِ (قَوَانِينِ الدَّوَابِينِ) لَهُ أَيْضًا. وَوَرَدَتْ فِي (تَحْفَةِ الْإِرْشَادِ) مِنْ مَخْطُوطَاتِ مَعْدَمِيَّاطٍ وَفِي دَفْتَرِ الْمَقَاطِعَاتِ «أَيِ الْإِتِّزَامَاتِ» لِسَنَةِ ١٠٧٩ هـ بِاسْمِ «بُشْنَتَوَيْ». وَفِي سَنَةِ ١٢٢٨ هـ كَتَبَتْ بِاسْمِ (بُشْنَتَوَيْ) وَهُوَ اسْمُهَا الْحَالِي (الْفَتْحِ الْعَدَدِ

(٨٠٦ صَفْحَةٌ ١٤)

As to the name of the village M. Drioton thinks « qu'il serait facile de proposer une équivalence égyptienne pour le nom moderne, dont la finale pourrait correspondre à l'ancien égyptien — t3 « la terre », mais que ce serait pure fantaisie tant qu'on ne peut s'appuyer sur un témoignage écrit ».

This group of baths at Kôm el-Ahmar makes us wonder where the town could be, to which the baths belonged. It is a riddle as no inscriptions and no writers mention any town in this vicinity.

The Kôm is at a great distance from Métélis; فَوْة. This place is as far away as Damanhûr. M. Historicas suggested Heracleum [*Eg. Gazette*, 5 July 1943], but this was not near enough to the Kôm.

It is not very probable that the town was at Kôm El-Negûti, which is also too far away. Professor Waddell thinks that the town is covered by the Kôm el-Ahmar itself as it covers a large area, and this seems to be very likely. It may be mentioned that there are two adjacent Kôms (1) Kôm el-Qadi or el-Wasat, which is fifteen minutes walk to the north of Kôm el-Ahmar and (2) Kôm el-Ghoraf which is an hours walk to the north west of it. It is possible that these two Kôms cover the two towns as they are only a short distance from Kôm el-Ahmar. If the

Department is able to excavate them, important antiquities might be found there. As for Kôm el-Ghoraf it has not been interfered with, as it lies in an uncultivated ground. Some coins, fragments of pottery, and some basins were found at Kôm el-Qadi. The absence of texts renders the matter more complicated. The only documents which have been found are the coins. These enable us to date the bath to the time between the Græco-Roman period and the Arab conquest. To the east of the Kôm a purely Greek bath was discovered, dated by Ptolemaic coins, of which the oldest one is of Ptolemy II or III. It is very simple and it may be inferred that it was a cold bath like the ancient Greek baths.

Hot bath.—The descriptions of the first baths (mentioned in the introduction) apply exactly to that of Kôm el-Ahmar. The discovery of traces of mosaics, fragments of marble and toilet objects of bone and ivory with glass, vases and mirrors, and statues, gives us an idea of the bath when it was in its original state. It seems to have been plundered at a late period; and even before the discovery of the coins, one had the impression that it was in use for a very long period. It is complicated, and the thick coats of plaster which cover the walls and the basins indicate that it was repaired several times. At the same time, the plan of the bath, the fact that some of the basins were filled up, the depth of the foundations, and the difference in their levels, indicate alterations and new additions, which rendered its original appearance more obscure. The finding of a golden dinar struck in the year 154 of the Hidjra (771 A. D.) shows that it was in use in the Arab period. The oldest coin found in that bath was a billon danarius (four drachmæ) of the time of Claudius, Nero etc. which belong to the series known as Alexandrian, with a considerable number of Imperial and Byzantine pieces among which is a follis (M = 40 nummia).

The well of the cold bath is built of brick and measures one metre wide. Higher than the level of the well at 1 m. 50, are the remains of another bath-room which is square and measures 0 m. 4 × 0 m. 2,5. This square is paved with a plastered floor and contains in the south traces of two foot baths. Near them and 0 m. 60 lower than their level was another oval basin 0 m. 60 × 0 m. 60.

To the north east of this square there were two basins in the form of a half circle juxtaposed 1 m. 35 in diam. The larger is 0 m. 80, the other 0 m. 55, the depth for both is 0 m. 70. In the larger there is a round opening 0 m. 10 in diam. filled with mortar as a filter to this opening; the water runs from this last basin into the canal, which falls horizontally until it reaches the earth, then runs towards the south. This canal is about 0 m. 40 wide, covered with square plates of *terracotta*. After 14 ms. to the south it turns west towards the bath (plan 1, fig. a and pl. I).

A square plastered floor of 3 m. 5 × 3 m. 5 remains of that bath. Upon it to the west there is a built water-tub, red in colour, 2 metres long, 0 m. 55 wide and 0 m. 50 deep. In front of it to the east, are two basins juxtaposed in the shape of an arm-chair (foot baths) 1 m. 50 long and one metre in width from the outer edge. The inner side of them is 0 m. 80 × 0 m. 55 and depth 0 m. 25. To the back of them a step used as a seat raised 0 m. 20 from the bottom and 0 m. 25 wide. The height of the back is about 0 m. 55. In the place of feet there is a small round cavity of 0 m. 20 in diam., where the water gathers and was emptied by recipient (plan 1, fig. b and pl. 2). These two basins are similar to those found in the bath of Edfou⁽¹⁾. Mr. Kazimierz Michalowski thinks that it is a foot-bath and he found it in the Caldarium of the bath at Edfou, which he believes to be a private one. The only difference between these basins and those of Kôm el Ahmar, is that the former are not juxtaposed, and are of oval form, and are separated by a tub. (Henne found at Edfou a bath with some similar basins, which he thinks were basins for shower. This is very probable in the case of Kôm el Ahmar although there is no trace of shower [see pl. III]. I think that the bather sat in it, and somebody else sprinkled water on him. But Michalowski does not accept this opinion and insists that they were foot baths. He may be right as it was found in the caldarium and in a private bath. His description of these basins is : "La salle n° 7 contient une baignoire rectangulaire et deux bains de pieds ovales, en forme de fauteuils construits en briques cuites, d'un enduit

⁽¹⁾ *Fouilles franco-polonaises, Rapport de 1937*, p. 68, fig. 20 (chambre 7).

de ciment romain, rose, fin, imperméable. La cuve ovoïde des bains est divisée en deux parties : partie siège et partie pied munie d'une petite cavité en cupule pour recueillir et vider l'eau à l'aide de récipients."

At Hermopolis nearly similar basins to those of Edfou were discovered⁽¹⁾. But these baths were public and not private. M. K. Bittel says that there are 8 round baths out of 15 in the Tell which were well preserved. Considering their size they were public and all belong to the 1st century A. D. Bath No. 3 contains small oval sitting basins : « Kleinere ovale Wannен dienten als Sitzbadewannen. »⁽²⁾ The floor of the room where they were found, is paved with mosaic. There is no detailed description of these basins of Hermopolis, but if they are not exactly the same as those of Kôm el-Ahmar and Edfou, yet they were intended to be of the same use.

About 2 m. 25 to the north of the red tub, after the end and to the north-east of the square pavement there is a rectangular basin of stone No. 3 (plan I) measuring 1 m. 30 in length and 0 m. 75 in width and 0 m. 15 in depth. Close at hand to its north lay a pottery vase of 0 m. 30 wide and 0 m. 50 deep, for the use of the bathers. They either took the water from it themselves, or were sprinkled by others. North to this rectangular one there are traces of two more basins of bricks No. 4 (plan I, pl. II).

Between the red tub and the rectangular basin at the northern end of the square floor, appears the end of the conduit coming from the above mentioned reservoir to the north east of the bath. This bath was of a large size and badly destroyed by the sebakhine. Traces of the floor still exist to the east with traces of a mosaic, and a conduit of plaster which begins nearly from the eastern end of the bath's floor and goes 3 metres to the east, then turns south 1 m. 20 and was then broken. This canal runs upon a floor of plaster of 1 m. 20 long and 1 m. 30 wide. To the east were traces of a basin 2 m. 50 long and 1 metre wide. To the east of the bath runs another canal from north to south 1 metre

⁽¹⁾ *Deutsche Hermopolis expedition*, 1931-1932. — ⁽²⁾ *Ibid.*, p. 4, Taf. XVIII a.

long and of the same width as the first one, 0 m. 30 (plan I and pl. III). The southern part of this basin is destroyed. Perhaps another one existed to the south of it. Traces of a brick building as foundation of a bath are still there (cf. plate III). To the east of the basin, and immediately attached to its back, runs the tunnel containing the conduits; its height at the back of the basin reaches 0 m. 65 (plan I, fig. c and pl. IV). It becomes narrower as it goes eastwards, when it ends with the main channel which feeds the bath with water. As a matter of fact, in this tunnel containing two conduits, one upon the other (cf. fig. c, plan I), the upper one receives the waste water while the lower one brings water from the well, until the end mentioned (p. 32) comes from the east of the floor and runs under the channels of the above-mentioned plaster. This tunnel is 1 m. 25 in length. The channel branches from it to the east as far as two metres then returns sixteen metres to the south where it is destroyed (plan I and pl. V). At that distance an earthenware conduit turns to the west from the main channel. It was destroyed, but 0 m. 40 of it remain. Here and there round the bath, there are still traces of basins either of built masonry or of a single stone like the rectangular one. The bath extended further around this complex. It was a large size bath as can be proved by the traces of buildings and basins destroyed around it (cf. pl. VI).

Vessels of pottery, amphoræ of water, dishes, and other things such as lamps were discovered; the greater part of the coins found there were Ptolemaic and enable us to date the bath to the same period. It would be better to mention here that similar contemporary baths were discovered elsewhere but they were all destroyed. Some of them were at Tell Sébakha (سبخا). M. G. Davery says « Il paraît que la vogue du hammam a beaucoup baissé et que l'on cesse de venir de Mansourah se baigner dans l'eau qui remplit la cuve⁽¹⁾. » The Kôm, as the author tells us, was Ptolemaic, as a royal tomb belonging to this period was found in the neighbourhood. At Tell el-Khoromphish there was also a bath consisting of a single room⁽²⁾. The bath found by M. Breccia

⁽¹⁾ G. DAVERY, *A travers les Koms du Delta. Annales du Service des Ant.*, XIII, p. 184. — ⁽²⁾ *Ibid.*, p. 183.

is contemporary with that one but it was intended to be for medical use only.

Fortunately enough there is a good example to compare with our bath at Kôm el-Ahmar; not only because the two baths are nearly contemporary, but because they were built on the same plan, especially in the way by which they were provided with water. It is the bath of Sakha which is still in a very good condition, its walls being about 0 m. 70 high. They are all plastered with cement. The traces of columns are still well preserved. I believe that this bath was a private one. Its dimensions are small and the rooms very few. It would be sufficient for one or two persons at most. It is similar to that of Edfu although not of the same date; the bath of Sakha is smaller, it contains only one tank for hot water and a foot-bath.

THE ALTAR OF KÔM EL-AHMAR : Thirty four metres to the north of the bath there is a square altar of bricks 4 m. 50 square and 2 m. 25 high (plan 1, fig. *d* and pl. VII). It was built upon a floor of plastered pavement. On each corner there are traces of a square column of bricks 0 m. 80 square. In the centre of it was a marble base for a statue. The lowest part of the base which rests upon the altar is octagonal, the sides measuring 0 m. 20, the top being a circle of 0 m. 50 in diam. The circular part is 0 m. 14 high and in the middle of it is a square hole of 0 m. 20 and 0 m. 10 deep. The height of the base is 0 m. 60 and that of the remains of the four columns of bricks is about 0 m. 70. The surface of that altar is paved with cement. Four steps lead to it, on its south side : each step is 0 m. 15 broad and 0 m. 30 long. The fourth one is destroyed. The rest of the pavement around the altar continues under the Tell but is not yet cleared. Thirty five metres from the western side of the altar and lying on the southern edge of the Tell, there is another building of a bath on a level nearly 3 ms. higher than the previous bath and 2 ms. higher than the altar's level. To the west of that building is a circular *descensio* or basin; within it are two steps to the east and two others to the west. It is covered inside with rose plaster. The width of it from north to south measures 1 m. 05 and from east to west 1 m. 90, its depth being 1 m. 10. The thickness

of the building is 50 cms. The following are the dimensions of the first steps :

Height of 1st step : 0 m. 45

Height of 2nd step : 0 m. 25

Length of each step : 0 m. 30

Width of each step : 0 m. 15

At the north-east of the bottom there is a drain to empty the piscina.

In the building to the east of that piscina there was a marble column bearing an abacus of 0 m. 50 square and 0 m. 12 thick. Beside the column was a plaster head, perhaps of Eros or Dionysos.

In the eastern part of the Tell there are two great circular basins of brick side by side. The room containing them is destroyed. Traces of walls are still visible. The northern basin is broken; it measured 2 m. 50 in the diam. To the north of the Tell there are traces of brick walls of two rooms, each of them being about 3 m. 50 square. In the room close to the south wall is a rectangular basin of brick not very deep (1 m. 70 × 0 m. 80). It rises from the floor at a height of 0 m. 40. The inner depth is 0 m. 15. The other room is of the same dimensions. To the north of these rooms a number of various heads of plaster and marble were found⁽¹⁾. In a higher layer above the rooms we discovered a collection of large Ptolemaic χαλκοί.

THE THERMÆ OF THE KÔM [PLAN 2].

The Thermæ were later in date than the Greek bath to the east of the Kôm. They stand far away in the west of the Kôm, where they are limited by the above mentioned Tell to the North. The distance between the Greek bath and the Thermæ is about four hundred metres or more, from which was taken the sebakh; all the buildings in this area were destroyed. Only traces of them, scattered here and there, basins built of brick or buildings of clay, broken columns of

⁽¹⁾ For the other things found there, cf. ADRIANI, in the *Annuaire du Musée gréco-romain*, 1935-1939, p. 163, and pl. LXXIII.

stone or marble, great pieces of stone representing basins, great vessels of pottery are left *in situ*. Not only there but in every place from which the sebakh was taken, we find traces of destroyed baths still *in situ*. To the south of the Greek bath and far away from it, there is a bath-room (6 m. 50 by 4 metres), with three small basins in it, each of them containing a drain. Under the plastered floor of the bath runs a drain 0 m. 15 in diam. To the east of the bath-room there was a well, built of brick, which is now destroyed; near that well there is a basin of 2 m. 50 by 1 metre. Some Roman coins were discovered near it. A piece of pottery was also found with a cross upon it.

Originally the *Thermæ* were a pure Roman bath, but the sequence of time influenced it so much, that it became very complicated, and finally, we found it to be a mere oriental or Arabic hammam.

Description of the Thermæ.— Through the entrance of the bath we gain access to a small square hall of 3 m. 50 square, provided with two doors. The eastern one leads to a rectangular room of 3 m. 50 by 4 m. 70 which was the apodyterion with a door to the south leading to the frigidarium No. 2. This frigidarium is a great rectangular hall of 17 by 12 metres, containing three basins (A. B. Γ.). To the middle of the eastern wall is attached the greatest piscina (A) measuring 4 by 3 m. 50 and being 1 m. 30 deep. To the north and south of that piscina, there were two rooms (3) and (4, plan 1) attached to it. The room No. (3) is of 4 m. 50 square and was a colonaded *elæothesium* with two pillars; it has three entrances. The middle entrance is 1 m. 30 wide, the two others are 0 m. 80. Room (4) was a rectangular hall of 4 m. 5 by 6 m. 30. The edge of the piscina is of 0 m. 40 higher than the floor of the frigidarium. Its two corners at the north and south are rounded. To the southern corner is attached a small semi-circular basin for a shower measuring 1 m. 30 by 0 m. 70 and 1 m. 10 deep. The pipe which supplied the shower with water is still on the wall of the basin and lies on the floor of the frigidarium. Two steps are along the whole of its western side. They come from the south west where the high reservoir stands (the length of the pipe was 2 metres, plan 2).

The steps of the piscina are straight from north to south and then become round at the southern corner, where they end. The northern corner of the basin is round too; perhaps it was a foundation for a column (plan 2, pl. VIII). In the room (4) there is a local oval furnace 1 m. 30 by 1 metre made of brick, which was probably built in a later period when the rest of the bath was neglected and the frigidarium was the only hall used as caldarium. To the opposite side of the basin there is another one, square in shape, measuring 2 m. 30 square and 1 m. 20 deep (B). Its south-eastern corner is round and has only one round step. To the south of it there is a rectangular basin (Γ) of 2 m. 70 by 2 m. 50. This basin was filled up in later period and this means that it was not used. It had not any trace of drain or channels to receive the waste water. It seems that it was a reservoir in room (2) for the water, because of its situation near the drain coming from the cistern outside, and owing to its nearness to the upper great reservoir (Z).

Under the part including basin (B) and (Γ) there are some basins, one of them being rectangular (Δ) measuring 0 m. 45 × 1 m. 10 and 0 m. 45 deep. The basin (B) is exactly on its west edge. Traces of a thin wall beginning from the northern side of basin (B) run as far as the southern side of the shower basin in the southern corner of basin (A), but were destroyed. Under that part lies a branch of the heating corridor.

At the opposite side of the piscina (A) in the western wall of the frigidarium, is a door of 0 m. 70 in width, to the north of basin B. It leads into a square room about 5 or 4 metres × 4 metres nearly. This room (5) is a rest-room; in the western side of the southern wall there is a niche. The door is in the west and of the same width. It leads to room (6) which was the tepidarium. The western wall of it is semi-circular. A trace of the drain, which is the only trace of a basin, is still on the wall going westward to the outside of the bath. In front of the opening of the drain outside the bath a pottery canal for the waste water was found going further westward. In the northern and southern walls are two places for two heating-channel. Under the door in the south wall there is an arch of 0 m. 45 in width and 0 m. 50 in height. This arch permits

hot air to come from the suspensura under room (7) containing the furnaces, into the suspensura under this room (6) which was the tepidarium of the bath. An example of such an arch under the door was found in the bath of Dosheh. The finder says «Pour que la chaleur puisse se communiquer d'une chambre à l'autre, des passages voûtés avaient été aménagés dans les murs du sous-sol, généralement sous les portes ou sous les piliers des portes. Leur largeur moyenne est de 0 m. 40, leur hauteur est calculée de manière à ce que le sommet de l'arc reste au-dessous de la couche de gros carreaux formant la base du plancher»⁽¹⁾.

Going through the door of room (6) in the southern wall one reaches the room (7). The main laconicum of the bath is a rectangular room of 5 m. × 3 m. 5. Under this room there is the hypocaust with two great circular furnaces of one metre in diam., facing the door of the hypocaust, which leads outside of the bath. To the west, in the centre, is another rectangular furnace. This door of the hypocaust in room (7) is in its western wall. It is between the great piscina in the west of room (8) and the main wall of room (7) in the north. This part of the wall is doubled. The two walls were separated, from the side of the door, and in the north they were joined together by the southern wall of Rooms (6 and 7, cf. plan 2). The distance between the two walls is about 0 m. 30. The inner wall in its eastern surface, inside room 7, has a canal for the heating-channel. The next wall in its eastern surface too facing the back of the first wall has a similar canal. This space between the two walls continues up until the end of the building from the outside as it seems. Probably this space between the two walls was a sort of chimney permitting air to come to the furnaces and to let the smoke go away when the door of the hypocaust was closed (cf. plan 2). In the western, northern and southern walls there are places for the heating-channel. Through the door in the southern wall one gains access to the caldarium (8). Another hypocaust consisting of two great furnaces is under it. This rectangular room measuring 6 m. 70 × 4 m. 50 approximately, contains two great piscinae. The one to the south is semicircular,

⁽¹⁾ *Annales du Service des Ant.*, t. XII, p. 183.

2 m. × 1 m., with three steps. In the bottom to the west, its drain goes outside the bath. The western wall of the caldarium is semicircular with a circular piscina with two steps of 1 m. 30 in diam.; to the west in the bottom, the drain for waste water goes outside the bath. In the western and northern walls of it are places for the heating-channel.

The floors of these rooms (6) and (8) are actually destroyed; the furnaces in (7 and 8) are still in their places in the open. To the east of room (7) where the furnaces are, there is a door leading to a small rectangular room (9) measuring 1 m. 80 × 2 m. 80. It is raised about 0 m. 75 higher than the level of the furnaces in room (7). In this room is a great circular furnace of brick 170 cms in diam. which very probably was the furnace for the boilers of hot water. To the east of this room a narrow space communicates with a small room of 2 m. 90 × 2 m. 30 built upon the heating corridor; and to the south of this room there is the door for steps which lead down to the heating corridor and up to the cistern of water. This room is still higher than room 9 of the furnace. In its northwestern corner is a trace of a small basin or seat. It is also still higher by 0 m. 20 than the level of the frigidarium of the bath, mentioned before. Under the space between the room of the step, room (9) in the east, there is an arch like that one between (7 and 8). That arch is opened to permit the heat of that furnace to go through the great arched corridor of heat upon which the room of steps is built. I think that the two rooms, 9 and the room of steps, stand in the open.

Actually the furnaces in rooms 7 and 8 are in the open; all the hypocausts are destroyed. In room 8 the two great piscinae in the south and west stand separately without any connection between them. To use them one must be inside the room, where the furnaces are on a level nearly 2 metres lower than the basins, a depth which was enough for a hypocaust to be built under the floor of that caldarium (plan 3 and pl. VIII).

In the eastern wall of room 8, which is at the same time the wall of the heating corridor beginning exactly at the southern end of the bath and going along close to the east of the furnace-room with the

two piscinæ, we find two arches; one begins from the level of the floor of the room, and is a metre high and 0 m. 80 wide (pl. VIII). Behind it there is a great circular furnace (T) in the room. The other arch to the north of the first is smaller: it opened in another, rectangular, furnace (S) to the north of the first one. This arch is below the level of the floor of room 8 [pl. VIII]. At the bottom between the circular furnace and the rectangular one there is an arch, 0 m. 50 high and 0 m. 30 wide, which communicates with the two furnaces. In the southern wall of room 8, exactly under the basin in that part, is a square hole in the wall, 0 m. 30 in depth (pl. VIII). This heating channel has a door in the south of the bath of 2 metres wide, 2 m. 50 high, and an arched roof. It runs 9 metres to the north. In its western wall and the eastern of the furnace-room 8 are two openings in the shape of arches, as we have already mentioned. Then it changes its direction and goes 2 m. 50 back to the west and then changes direction for 3 metres to the north, where there is another arch communicating with the furnace of room 9 which we mentioned before. This arched opening of room 9 is 0 m. 50 higher than the level of the two other arches; after 9 metres from the south where the corridor changes its direction, there are some steps going from the channel up to the small room mentioned before and continues until the great reservoir which is built exactly above the corridor. Opposite the steps, inside the pipe, there is another narrow branch of the corridor 0 m. 70 wide which goes eastwards exactly under the basin (Γ). This branch of the corridor probably ends with a hypocaust or a suspensura under the room containing basins B and (F). We cannot prove that hypothesis until after new excavations. But what is certain is, that this branch of corridor was to heat the new caldarium under which the branch goes, because opposite to the steps, up in the eastern side of the round roof of the corridor a circular opening of 0 m. 50 was made in the new caldarium. This opening is behind the basin (Γ) near the western wall of the caldarium; probably that was during the last period of that bath when all the ancient hot parts were neglected and they ceased to use that branch of the corridor. In the east, a local furnace, which we mentioned before, was substituted for it, to heat the new caldarium, which was at

first the frigidarium; also they opened that circular opening to increase the heat in it [plan 3, coupe C-D].

This heat corridor communicating with all furnaces was essentially to provide heat for all parts of the bath, which are far away from the furnaces and the hot part of the bath. An example of this is found at Edfou⁽¹⁾ where there is a brick conduit between the bath room and the furnace. «Entre le bain de pied et le mur sud, deux minces briques cuites chacune de 0 m. 35 de largeur, brisées à demi hauteur, marquent l'emplacement d'un conduit pour la circulation de l'air chaud d'hypocaust. Cette pièce de calorifère communique par un conduit également en briques cuites avec le four placé entre la salle de bain et la pièce n° 8⁽²⁾. A similar heat corridor was found in Karm Abu Mina «g-h Räume mit Hypocausten, darunter g-i Heizkeller, grosser gewölbter Korridor»⁽³⁾.

By the heating corridor the fuel could be put in the furnaces of the hypocaust under the caldarium room (8) through the two arches. Also through it air came to the furnaces and the smoke went outside from the door of the corridor in the south of the bath.

On top of that heat-corridor there is a large rectangular cistern (Z) of 5 m. × 3 m. 30. In the middle of it is a wall dividing it into two equal parts; in the middle of that wall is a space of 0 m. 70 to permit water to run from one side to the other. This cistern is plastered with a rough coat of cement so as to help to purify the water when it goes from one side to the other⁽⁴⁾. At the south-western corner of it a water-channel falls straight along the western side of the door of the corridor of heat. Then it goes southwards to the latrina of the other part of the bath. This cistern (Z) is 1 m. 60 higher than the level of the basin (Γ), which is immediately to the north of it. On that high level this cistern must have provided all basins and boilers, upon the furnace of room 9, with water and also the round basin of the shower, where the traces of pottery pipes still run in its direction.

⁽¹⁾ *Fouilles franco-pol., ibid.*, p. 68-69.

⁽²⁾ *Ibid.*, fig. 30, p. 67.

⁽³⁾ M. KAUFMANN, *Die Menas Stadt und das national Heiligtum der altchristlichen Aegypten*, 1905-1907, p. 107 and taf. 48.

⁽⁴⁾ For different types of cisterns and their several modes of building for the purpose of purifying the water, cf. CAGNAT et CHAPOT, *Manuel de l'Archéol. romaine*, t. 1, p. 85 sq.

DRAINAGE SYSTEM OF THE THERMÆ.

We mentioned that the entrance-hall has two doors; the first, on the east, leads to the apodyterion. The second, on the south, leads into a great hall 6 m. \times 6 m. 50. This is room 10; the main drain of the bath which carries off all the waste water from the basins to the outside of the bath goes westwards through it. This drain begins from the basin A. To the north of it there is a small square hole plastered with cement (pl. VIII). From the basin the drain starts towards the west, inclining to the north after 4 m. 50. Another drain five metres long comes from the south taking the water from basin B. From the basin of the shower another drain goes from east to west for 3 m. 50 and joins the drain from basin B near its beginning (plan 2). The main canal continues straight into room 10; after five metres in the room it becomes 0 m. 30, narrower 2 m. 50 to the west of it there is a great rectangular basin of 5 m. \times 3 m. which is in the extreme west of the bath. In the south-eastern corner it has two round steps (fig. 4 a). In the northern corner is a lead pipe in the bottom leading the water outside the bath into a brick channel. This room 10 containing that basin was a sort of frigidarium during the first period of the hammam. It is on a lower level than the basin room (2). The channel in it stands 0 m. 75 higher than the floor. During the first period of the hammam the channel had to go northwards to join the channel going under the northern wall leading the water to the main drain of the W. C. placed in the next room to the north of room 10. The floor of room 10 was paved with slabs of stone which still exist. Later, when the new hammam was built upon the first, they filled up room 10 and its basin to the new level of the channel which goes directly to the west, where we found in the northern side the basin which had been filled up to the higher level; in the same level of the room is an opening leading to a drain 0 m. 40 in width. This drain goes round above the ancient borders of the basin (cf. fig. 4 b). To the north-west in the wall there is an arch designed for the inspection of the channel which leads

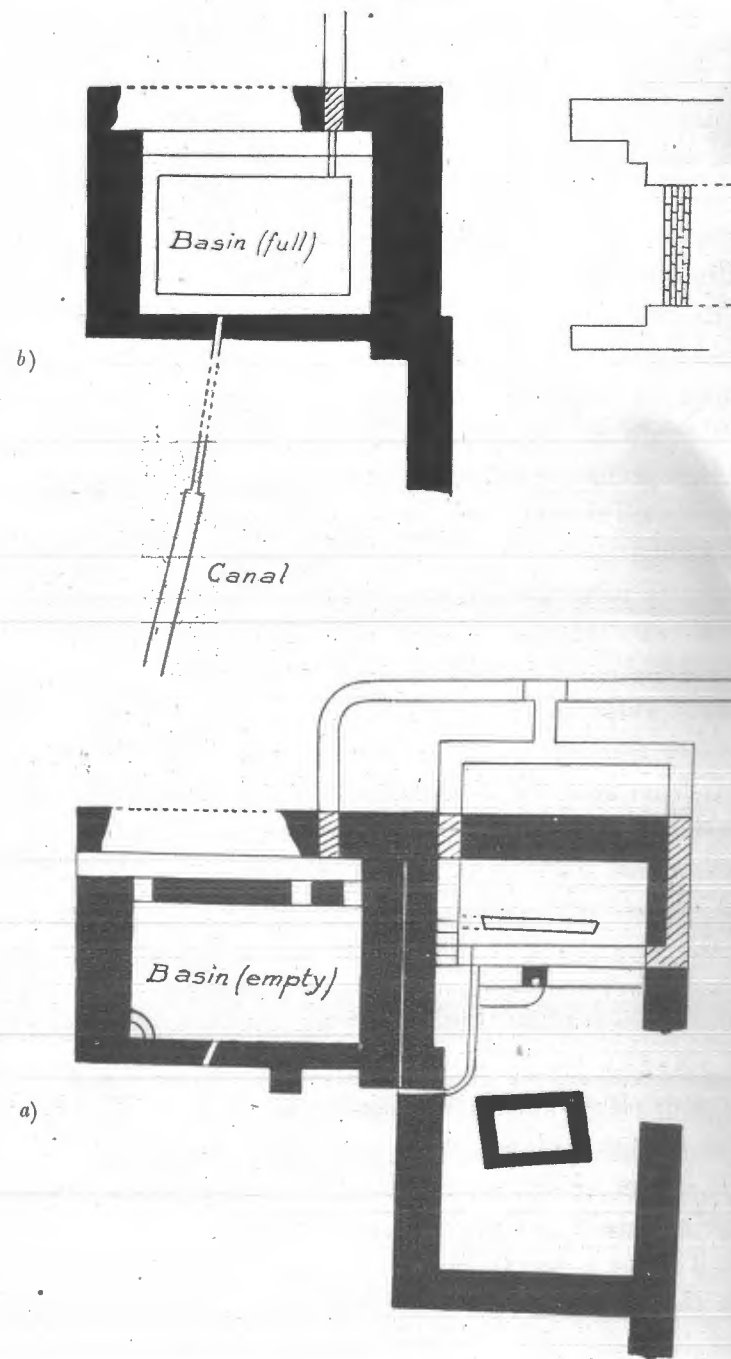


Fig. 4.

the water down to other channel outside the bath. The water goes down to the same place as the original drain of the basin. This channel goes 3 metres to the west from the bath and then turns north. Its end is still uncleared. Room 10 in the second period of the bath with its basin filled was not used as a bathing room. Perhaps it became a lobby for the Hammami (balneator). This room 10 has two doors. The first is in the western wall of room 2. This door was between the frigidarium and room 10. The second door was to the north of the first one. The wall between the two doors leads westwards making a corner for the second door and begins a narrow corridor. Perhaps it was a short corridor designed to lead the bathers directly from the frigidarium to the principal door of the bath without going into room 10. The length of the traces of the wall of the corridor is 0 m. 50 only.

The latrina or water-closet (W. C.). To the north of room 10 there is the W. C. 11. There is no connection between these two rooms except the channel already mentioned beginning under the northern wall of room 10. The door of the W. C. is on the outside on the north of the bath to the west of the principal door of the hammam. This room nearly 4 m. 50 × 8 m., is situated in the north-west of the bath, and is divided into two parts. In the eastern part there is a great rectangular oven of bricks 2 m. 50 × 2 m. and depth 1 m. 30. The upper part of this has been destroyed. The western part of the room is the W. C. This part is 1 metre lower than the eastern one. The lower parts of the western and northern and southern walls are of clay, the upper parts are of bricks. This W. C. has only one seat of limestone, a cube of 0 m. 40; the fore-part to the east is cut, making a hole of 0 m. 20. It is placed upon a rectangular mass of building plastered, from south to north of the room 0 m. 40 in width and 0 m. 25 in height. In the middle, where the seat is placed, there is a built drain 0 m. 20 broad. When it reaches the edge of that mass in the north, it forms a narrow rectangular basin, which begins in the north with the northern edge of the hole of the seat and goes nearly two metres to the south. The western edge of that basin is the mass upon which the seat is put. This basin measures 2 m. 40 ×

0 m. 50, 0 m. 25. At the southern edge it joins the channel mentioned before, which comes from under the wall south of the W. C. and goes to the channel immediately to the west behind the mass. The northern part of the basin is open and the southern half is covered with slabs of marble. This channel goes from the south to the north of the room 11 and ends in two other channels going westwards. The north channel runs under the north wall until it goes outside the room on the west. The southern channel is half under the southern wall and half in the room. The eastern part of it near the mass is covered with marble. It goes westwards parallel to the northern one to the outside of the bath. One metre to the west outside the wall the two parallel channels are joined by another from south to north. This makes the water circulate in a square of channels like that in the other W. C. of the second part of the bath (fig. 4 a); half a metre back to this canal, goes parallelly the canal coming from the basin in room 10 in the south. In the middle of the canal of the W. C. a small canal joins it with the canal of the basin (fig. 4 a).

THE SECOND PART OF THE BATH.

Close to the south of the first bath, there is another bath nearly 2 metres lower than the first. The eastern part of it is almost entirely destroyed because it was the place where water was raised from the great well.

The entrance is in the south. On the left was a room 2 m. 30 square (W) which was the W. C. The channel which we mentioned coming from the cistern of the upper bath, begins to the west of the door of the heating corridor. Going southwards it inclines a little to the west, crossing two walls until it enters the W. C. in the extreme south of the bath. Under the door, it turns to the east, then to the south and then to the west and north following closely the four walls of the room. Then it goes out of the W. C. crossing its northern wall in the north-western corner, and joins the channel which takes away the water westwards out of the bath.

After that room to the west one goes through a corridor 12 about 8 m. 40 long and 1 m. 60 wide. To the north, one enters another parallel corridor of the same measurement, along which the channel for waste water (branch *b*) goes close to the wall in the middle, which began in the extreme east of that corridor 13, where the great canal comes from the upper cistern, before crossing this wall. A metre westwards the main drain after going round into the W. C., returns and crosses the wall to join the channel (branch *b*) in the corridor 13. To the north one enters the door of the bath. On the north of that entrance is a rectangular room 1 m. 50 × 2 m. Close to the door is a square basin (H) 1 m. × 1 m., × 0 m. 70 near the eastern wall. In the northern wall of that part, there is an aperture communicating with a furnace close to the north of that wall. To the south of the door is a square area as an entrance 14 to the bath 2 m. 50 × 2 m. 50. This area is paved with mosaic of marble (cf. fig. 1). The part containing the basin and that which is paved with mosaic on both sides of the door, as it seems, make a sort of a small tepidarium for the second bath. In the western wall of that entrance a door 0 m. 70 in width leads to a rectangular room (15), paved with the same mosaic of marble as the entrance, and measuring 4 m. 10 × 2 m. 10 [cf. fig. 1]. This room was the apodyterion of the bath⁽¹⁾. In the western wall of it is a seat of brick, height 0 m. 35, length 0 m. 50, its back 0 m. 80, width 0 m. 40. In the northern wall is a door leading to the laconicum (16), a rectangular room of 3 m. × 4 m. 30. In that room there are square bases of bricks 0 m. 24 high on which are traces of pillars for the suspensura (cf. pl. IX). In the south-eastern corner is a rectangular opening communicating with the furnace (F) behind this room. This opening makes a square in the wall of the laconicum, beginning at the level of the floor, and 0 m. 30 high. It was to supply the suspensura under the laconicum and caldarium, and also to heat the conduits in that corner. This is another heating conduit which resemble the heating conduit in the Edfou bath.

⁽¹⁾ The situation of the apodyterion between the tepidarium and the laconicum is quite roman, cf. *supra*.

In the next south-western corner is a place for another heating conduit. In the northern wall of that room is a door leading to the caldarium (17) of the bath, a rectangular room of 3 m. 10 × 4 m. Its western wall is semi-circular, where there is a great circular piscina 1 m. 80 in diam. and 1 m. 30 in depth, with two semi-circular steps in the eastern side [pl. X]. Its drain in the south west communicates with a little square basin outside, from which begins a channel taking the waste water westwards. At the back of the piscina are traces of the floor which was raised upon the hypocaust and paved with marble. Attached to the western wall of this caldarium as far as the back of the basin are piscina of bricks standing one beside the other leaving spaces between them; their height from the floor is 0 m. 35 and distance to the wall 0 m. 30. From the back of the piscina along the northern wall of the caldarium they are 2 m. 10 long and from the back of the piscina southwards 2 m. 20. These plates of bricks, round the two walls are traces of the suspensura under the floor of the caldarium.

To the east of the caldarium there is an arched door communicating with the furnace (F) which stands immediately behind, to the east of the caldarium and the laconicum, which communicates with the furnace by means of the square opening mentioned before. In the southern wall of the caldarium are two heating conduits on each side of the southern door.

Immediately above the top step of the piscina there is an opening lined with lead which goes from the inside of it eastwards to the caldarium [pl. X]. A similar basin, but a hemispheric one, pierced in the same manner and place was found in the bath of Kôm Dosheh (دوشه) I accept the logical explanation given by Mr. G. Daressy « Mais la piscine n'était jamais remplie à plein bord car un tuyau d'écoulement en plomb établi juste au-dessus de la première marche déversait dans la salle G le trop plein dès qu'on arrivait à ce niveau »⁽¹⁾. To the south west of the bottom of the basin (I) is the drain for waste water. To the west of it in the outside is a little square hole like that of the basin (A) in the first bath, from which begins the channel for waste water going westwards (pl. X)

⁽¹⁾ *Annales du Service des Antiquités*, t. XII, p. 180.

This caldarium is situated to the south close to the back of the caldarium of the first bath, but is 2 m. 20 lower. To the south west of the piscina and close to the outside of the wall of the laconicum to the west of the bath there is a well preserved furnace. It is rectangular, 1 m. 90 × 1 m. 60. The inside of it is cylindrical, width 0 m. 40, depth 0 m. 90. But the upper surface is hexagonal. To the west, this hexagon is not complete; instead of the 6th line it has a semi-circular opening [plan 3, coupe (G-H) and pl. X]. In the lower part of it in the west of the furnace there is a rectangular opening 0 m. 40 high 0 m. 20 wide. This small door was for the fuel. A contemporary furnace of different form was found in the private bath in Edfou. This furnace is inside the bath. It is of small dimensions, nearly the same as that of Kôm el-Ahmar, 0 m. 70 × 0 m. 85. Its form is an ordinary one, with three sloping pillars of brick converging to the middle of the furnace.

I think that the situation of the furnace in that part is quite natural, because of the hot water boiler which had to communicate with the round basin in the caldarium by means of a lead pipe through the wall, and also for the purposes of the balneator himself. To the east of the caldarium is a space in the open where there is a great furnace (F) built of bricks. This furnace is not completely rectangular. At the back it measures 2 m. 14 in its eastern side. Because it is situated exactly at the back of the hemispheric basin of the caldarium of the first bath, it became narrower till about the middle where it measures 1 m. 40 in its western side. Then it becomes semi-circular. At the back of it is the channel coming from the upper cistern (Z) of the first bath. This channel separates it from a basin (G) deep in the earth, to the east of it, standing in front of the door of the heating corridor. This furnace (F) communicates with the caldarium on the west by the door, and then with the laconicum through the square opening on the south west, and with the basin (H) to the north of the entrance of the apodyterion through an opening on the south. Therefore it is obviously designed to heat all that part of the bath. It is sufficiently large for that purpose.

At the back of the furnace (F) there is a rectangular basin (O) built of bricks and separated from the furnace (F) by the channel. This basin is

of 3 m. 30 in length, 1 m. 40 in width and 1 m. 40 in depth. On the southern side of it is a wall of the corridor containing this basin (O) and the furnace (F). The other side of the corridor to the north is the first part of the bath. This basin (O) was intended to take the waste water when it flowed to that part from the canal coming from the upper cistern (Z) which is placed on its western edge. The length of the southern wall of the corridor is about 7 metres. On the opposite northern side, with its back to the frigidarium of the first bath at the eastern side of the door of the heat corridor, is built another wall nearly 4 metres long, ending at the eastern end of the bath. Then it goes to the south making the wall of the eastern side of the bath until it reaches the well at a distance of 8 metres to the south east. This eastern wall meets another wall beginning at the western edge of the well which goes westwards nearly 3 metres and then goes to the north to meet the eastern edge of a basin (K) built of brick of 2 m. × 1 m, depth 1 metre, with two steps in its south-western corner. The eastern part of this basin is destroyed. It is placed between the wall of the corridor at its eastern end, to the south, and the other wall of the bath coming from the south where is the wall of the well.

The channel of stone going to the cistern of water in the south east of the first bath mentioned above is destroyed for a distance of 1 m. 80 [pl. XI] to the east from the basin (K). Because it is situated immediately behind the hemispheric basin in the south of the caldarium of the first bath (8), it became narrower till about the middle where it measures 0 m. 40. If it continued in the same line it would not meet the basin. The only possible suggestion is that this channel changed its direction westwards until it met the basin (K) to take the water from it. At this point where the stone channel stops near the wall there is a gap of 1 m. 30 as a door through which the channel can go to the basin. Two metres above this door there was a kind of basin which was so destroyed that it fell. This was nearly above the basin (K). Water was raised from the well to it. Then it goes into the basin (K) and through the stone channel into the cistern in the north east. A small channel filled the upper cistern (Z) which is above the heating corridor. From the south-western edge of the basin (K) there is a wall going to the south for 3 metres. It

then goes westwards until it meets the wall limiting the end of the corridor leading to the bath.

The channel which we mentioned coming from the western side of the door of the heating corridor receiving the water from the high cistern (Z) goes to the latrina (W. C.). This distance is 17 m. 50. It is the length between the two extremities of the second bath from north to south. We suppose that because the water-level was very high the cistern (Z) was large and at the same time the channel was at first shallow, because it passed over the furnace building until it passed through the south wall of the corridor containing the furnace (F) and the basin (O). It is at a point about 3 m. 5 from the beginning and the depth of the channel here was only 0 m. 20, they built the basin to take the water which flows from the channel. After it crosses the wall of the corridor going southwards, we found a branch (a) going westwards to the small basin (H) in the north of the entrance (14) of the apodyterion of the bath. This branch also takes the water of the basin (H) and then turns round the basin from north to south. Then it goes under the apodyterion on the northern side, till it goes outside the bath. There it goes round the furnace on the outside and turns to the north, and that is branch (a) from the beginning to the end.

The second branch (b), before the channel crosses the wall between the two corridors (13 and 12) to go to the room (W) in the south, the branch (b) goes along close to the wall of corridor (13) on the north, and goes westwards along the north side of the wall until it reaches the outside of the bath. There it turns to the north until it touches the first branch (a) and then changes its direction to the west (b). The main channel goes through under the wall, then enters the W. C. and goes round the walls to east, then to the south, then to the west, and then goes straight through under the northern wall and continues straight northwards until it goes through the same wall between the two corridors which it intersects after leaving branch (b) a metre to the east. Then it joins the canal of branch (b).

In the latrina the depth of the canal is 1 metre and the width is 0 m. 40.

THE TWO WELLS OF THE BATH.

This bath was far from Alexandria or any great city; so we expect that it was provided with water from its own private sources, not from the water coming through the public aqueducts. It was of great dimensions and a double hammam for women and men. Two wells were dug in order to facilitate the distribution of water. To the south east of the first part, nearly 10 metres away, and to the east of the second part, there is a great well of brick 6 m. 50 in diam. No traces enable us to see how the water was drawn up to the basins; perhaps it was by means of a shaduf (شادوف). But the only possible way is that of basin (K). We suggest water was led from it by the stone channel which goes to the north east to a great receptacle for water in the south east of the first bath. This channel from the wall to the receptacle is 4 m. 50 long, and 0 m. 40 wide (pl. XI). Water comes to the receptacle by a small square basin 0 m. 80 × 0 m. 80, depth 0 m. 90 to the south of the great receptacle. It communicates with that receptacle by means of an arch 0 m. 55 in width and 0 m. 80 in height. The great receptacle is rectangular, 2 m. 10 × 2 m. 60 and 2 m. 55 deep. Its ceiling is slightly curved and opened in its south east corner (pl. XI). Above the ceiling there is a trace of a channel built of brick 0 m. 25 wide and raised up from the ceiling 0 m. 35 and 2 m. 60 to the south away from the wall of the first bath; this trace of the channel runs from east to west (pl. XI). The only possible conjecture is that it changes its direction to the north and goes to the bathroom through a hole in the wall to the east of basin (Γ). This receptacle was designed to purify the water, as Professor Drioton rightly observed. The second well stands in the extreme south of the whole building, in the corner which joins the west wall of the W. C. and the southern wall of the second bath. This well is smaller than the first one. It is 3 metres in diameter. In that place many amphorae and vessels of different shapes were found.

It has already been mentioned, that the general custom in double baths was that the two parts were separated, but that there was one furnace for both, to economise fuel. Here in this bath we see that its two parts are

entirely separated; but the second part in the south is 2 metres lower than the level of the first in the north. I think that, although the two parts are contemporary, this second part was added later, after the first had been built.

No boilers were found, nor any traces of pipes of lead, doors or windows. All the walls were of brick, except the walls of the laconicum and the caldarium of the second part of the bath which were of lime-stone. Also the water-channels and the cistern were of stone. Some parts of the walls in the first part were of clay (cf. the W. C. of the first part). All channels for the waste water were on a carefully made system; all these channels are of the same kind, coated with cement and with curved roofs, and all go under the floors. The drains of all basins in the baths are of lead.

THE TELL TO THE NORTH OF KÔM EL-AHMAR.

We mentioned above a Tell which limits the bath in the north. On its eastern edge and 50 metres to the east of the bath, a square room of bricks 6 m. \times 6 m. was found. Its door is in the south. The walls are one metre thick. From the outside their height is 2 metres, but the floor inside the room is raised; the walls on the inner side are of one metre in height. In this room a circular furnace was found; traces of burnt dust are still every where in the room. There were also found in it a large terracotta candelabrum of twelve lamps and a group of single-wick lamps. This room stands alone without any building near it.

In the middle of this Tell a sounding was made as Mr. Drioton proposed. A trench some 30 metres long, 12 metres wide, and 10 metres deep was cut from south to north through the middle of the Tell. Five metres from the southern end of the trench there appeared the external corner of a room. A wall 5 metres long only was cleared, the rest going under the western side of the trench; 9 metres to the north of that building on the opposite side of the trench another wall of 4 metres long and 0 m. 50 thick appeared. Nine metres to the north of that building, appeared a building going out of the hill. A channel running north-west was traced for 13 m., after which it appeared to continue beyond

the side of the trench. This canal is of brick covered with slabs of stone one metre in width from its end, and grows narrower in the opposite direction. To the north east of the channel near the side of the trench a wall of bricks appeared. Nine metres from the hill to the north west it turns making a rectangle of 5 m. \times 3 m. as a room lacking the fourth wall in the north-eastern side. From the hill in the east a brick

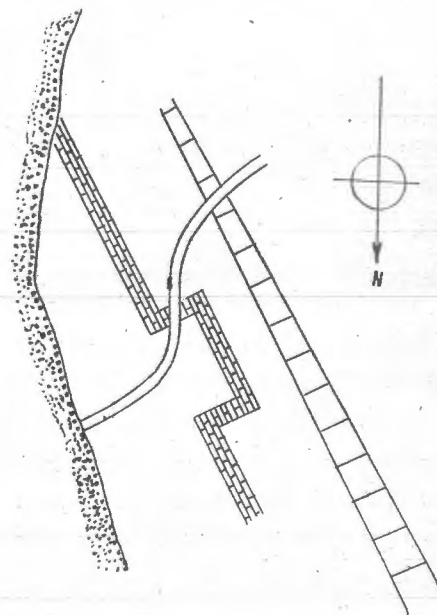


Fig. 5.

conduct of circular cross-section and 0. m. 40 diameter passes through that room, crosses the south-western wall and turns passing over the first rectangular channel (fig. 5).

In the trench near that building a small collection of imperial coins was found. I think that this Tell contains other baths in that part. A pure Greek one will be under the hill in the north-east of the Tell, where I found a part of it, as we mentioned, at the back of the altar; more excavation must be done to clear it.

KÔM KHOBEIZ.

Kôm el-Ahmar is not the only one containing a collection of baths, among the Kôms of the Delta. Kôm Sakha, although it is destroyed, still shows important traces of more than one bath. Also two kilos to the west of Sakha, in a village called Hamrawi (حمراوي) there are two buildings of great dimensions. I think it is very probable that they are baths. The plan given here for them is approximate and not exact. The two buildings are hidden in the long vegetation round them. The first building is to the south (1). The second is to the north (2). This latter was destroyed and divided by the road which the Ministry of Agriculture made. In the second building is a complete round furnace. The height of the walls, which are all of brick, is from 1 m. 50 to 3 metres and its width 0 m. 80 (cf. plan 4). They belong to the Roman period.

In Upper Egypt Kôm Central in Edfou has two baths; one is a private bath, the other to the south a public one (1). Also in Hermopolis Ashmounein (2), a group of fifteen baths was found. Some of them are of round construction, the others are rectangular. Eight of them are well preserved; containing basins of different types. The bath No. 3 has two small oval basins (sitting bath—Sitzbadewannen) with hypocaust, mosaic on floor of four colours (*vierfarbigen*). These baths are public as Mr. Bittel says and all belong to the first two centuries A. D. They, as their ruins show were richly decorated. Near them is a huge cistern or water-tower (*Wasserschloss*) for the public water supply. Also, in the street of Domitrianus to the south of Antonoe street of Hadrianus to the east of the Agora, is a channel with pottery pipe for bringing fresh water under the street (cf. pl. XXVII a, b, and pl. XVIII a, b).

It is very natural for a great city like Hermopolis to have such a group of public baths and a water-tower. But the problem of the baths of Kôm el-Ahmar is to identify the exact city which used these baths.

(1) *Fouilles franco-pol., op. cit.*, fig. 30, p. 67 and p. 70. — (2) *Deutsche Hermopolis Expedition*, 1931-1932, p. 4, K. Bittel.

THE BATH OF SAKHA (PLAN 5).

At Kôm Sakha (سكخا) my colleague Naguib Farag, discovered a bath of which he will give us in the near future a detailed description. We mention it here only for comparison with the Greek bath of Kôm el-Ahmar. It is a small bath which was built later than that of Kôm el-Ahmar. The coins found near it are of the later period of the Ptolemies and the beginning of the Roman period. But still there is a great similarity between the two baths. The hammam of Sakha (سكخا) is a small one but of the same plan as that of Kôm el-Ahmar, a sort of a small private bath of 7 m. \times 9 m. Its main entrance is from the western side. Its door leads to a square room 1. This small room No. 1 was an apodyterion. In the southern wall is a sort of niche, and to the left, another door, which leads to the entrance of a great piscina. This piscina is round, nearly 2 m. 50 in diam., with traces of six columns which probably made a sort of portico in the frigidarium. To the south-west of the piscina is a round seat for a bather to sit upon, it has one step forming a sort of a seat attached to the piscina. From the main piscina one goes into a square room No. 2 containing one tub built of brick. This tub is 1 m. 80 long by 0 m. 60 wide, and stands close to the eastern wall. On that tub a great bronze Ptolemaic statue of Dionysos (1) was found. This statue was the cause of the discovery of the bath. As the bath consisted of these two rooms only, it was undoubtedly considered a private one. To the south there is another entrance for the bath. This door of the southern entrance leads to a corridor, which leads to the piscina and to the apodyterion, on the northern side of the corridor to the back of the piscina is a channel taking the waste water of the bath eastwards outside of the bath. It is a channel of brick exactly of the same type as that of Kôm el-Ahmar. This channel leaves the bath towards the east. It reaches a receptacle for the waste water which is not yet discovered (plan 5, A). Twenty eight metres to

(1) *Annales du Service des Ant.*, XXXIX, 1939; Nagib FARAG, *Le Statue de Sakha*, p. 321.

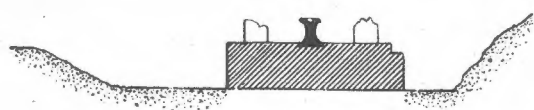
the south of that bath stand two wells (1-2) to provide it with water. The main well No. 1 is of brick, the other No. 2 is of pottery standing 2 m. 50 to the east of the first well. Close to the first well is a trace of square basin built of brick and plastered 1 m. 30 × 1 m. 30; from its eastern side begins a pottery conduits of water. This conduit goes northwards then turns to the east until it reaches the bath, in the east passing over the channel of the waste water outside the bath, and continues north words leading the water to a deep reservoir (1). From that reservoir water by means of amphorae was taken to another reservoir (2) to the north of the first, but not so deep as it. In the western side of it is a drain which leads the water to another oval basin. Through the drain of that basin water reaches the piscina. Upon that oval basin on the western edge there is a trace of another small basin (plan 5, fig. B) the drain of which takes the water into a small oval basin to the west of it which is on a lower level. This bath clearly resembles that of Kôm el-Ahmar in the way of providing water, its drainage and the shape of its conduits. Then the two baths are nearly contemporary. The Kôm of Sakha had more than one bath. I found more than twenty wells, without any trace of building near them. These wells are of three kinds: there are wells of brick. These are wider than the second kind, the wells of pottery. The widest of all is the third kind, the wells built of lime-stone. The wells of pottery consist of pottery circles put one upon the other till the level of water.

In Sakha too, we found a trace of a channel of stone inclining to the north and joining a well or a receptacle of waste water, both of them are of lime-stone. These were situated near a trace of temple which is destroyed. It seems that this canal was coming from a bath situated up near the tomb of Sheik Tag El Din, which is built upon that part of the bath. The tomb still contains a large space of mosaic floor.

LIST OF BATHS FOUND IN EGYPT.

1. BRECCIA, *Bull. de la Soc. Archéol. d'Alexandrie*, t. V, p. 142 sq.
2. *Annales du Serv. des Antiq.*, XIII, *Hammame de Sabakha* سبخا, p. 184 sq.
3. CALDERINI, *Bagni pubblici nell'Egitto greco-romano; Rendiconti del Reale Istituto Lombardo di Scienze e Lettere*, 1919, p. 297 sq.
4. *Annales du Serv. des Antiq.*, XIII, *Fouille de Sheykh Zoueid*, 1913, p. 31 sq.
5. K. BITTEL, *Deutsch Hermopolis expedition 1931-1932*, p. 4 sq.
6. *Annales du Serv. des Antiq.*, XII, *Kôm el-Dochés*, p. 182 sq.
7. K. M. KAUFMANN, *Menastadt* (Mina Abu Karm), p. 130 sq.
8. *Fouilles franco-polonaises*, Tell Edfou, 1937, p. 68 sq.
9. HENNE, *Another bath in Edfou*.
10. F. LUCKHARD, *Das Privathaus im Ptolemäischen und römischen Aegypten*, p. 96 sq.
11. PAUTY, *Hammams du Caire*.
12. *Kasr-Karoun (Dionysias). Fouilles franco-genevoises.* (J. SCHWARTZ et H. WILD); Markez Ibshoway ابشواي.
13. *Baths of Tell Athribis (Benha)* [unpublished].
14. *Bath of Kôm el-Wasat (el-Kadi), near Kôm el-Ahmar (Abu Hommos* ابو حص), (unpublished).
15. *A bath at Kôm Turuqa markaz Abu-el-Matamir* ابو المطامير Behéra. (HAMADA and SHAFIQ).

Plan 1



Coupe A-B

fig. d

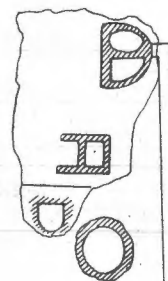
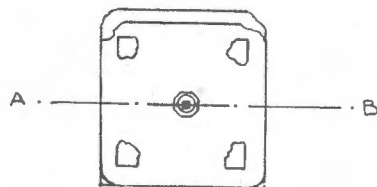
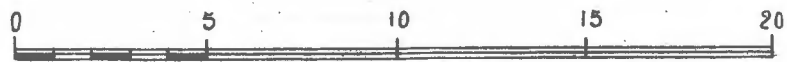
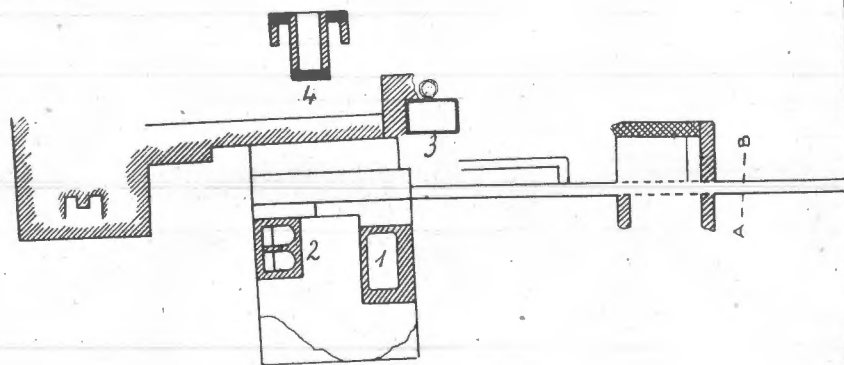


fig. a



Metres.

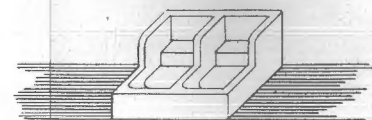


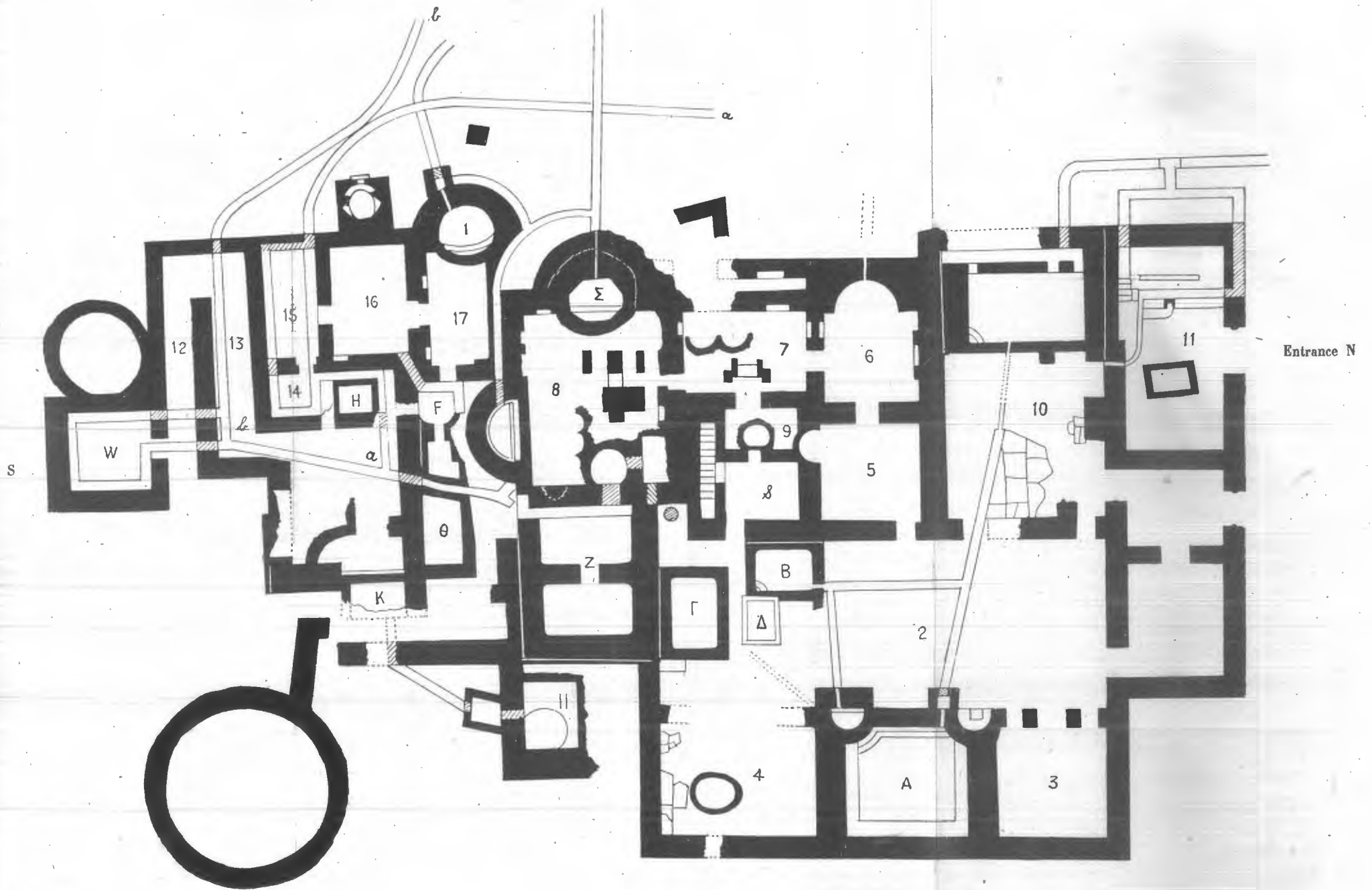
fig. b



fig. c

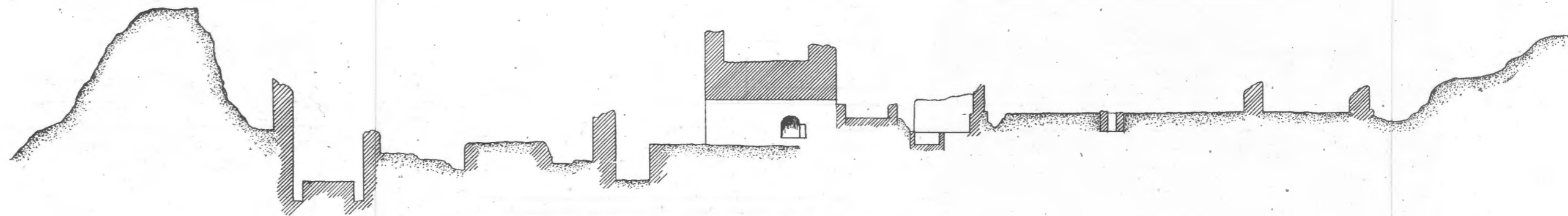
Coupe A-B

W

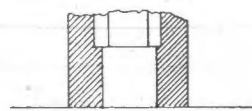


E

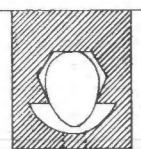
Bath of Kôm el-Ahmar.



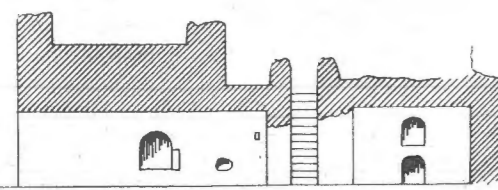
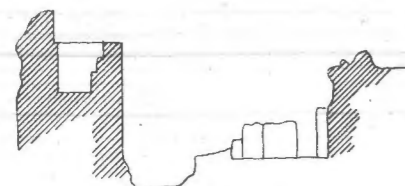
COUPE A-B



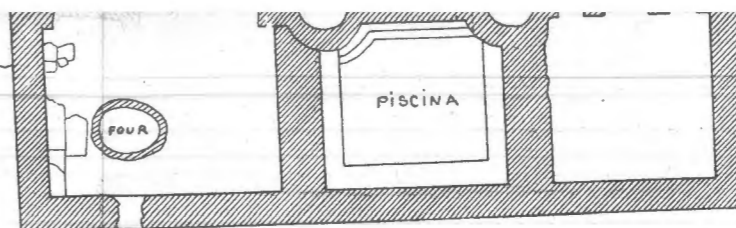
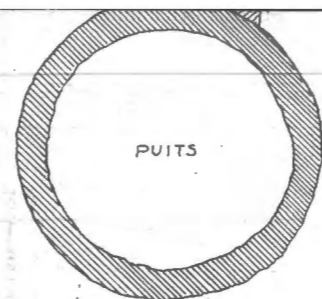
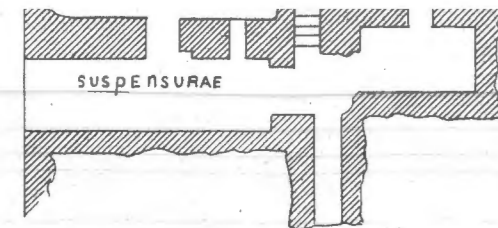
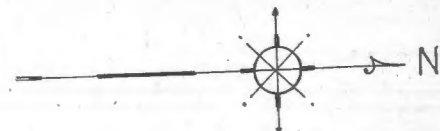
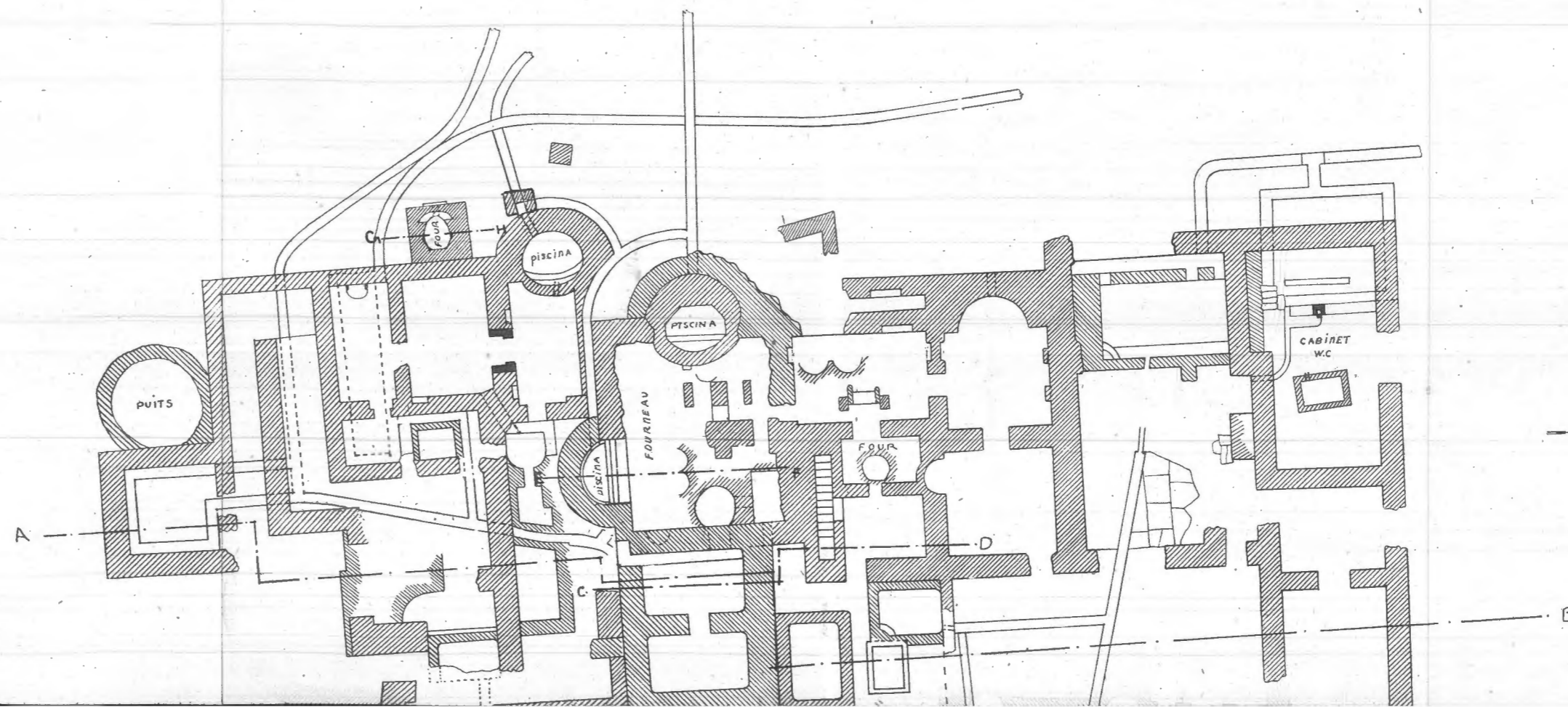
COUPE G-H



COUPE E-F



COUPE C-D

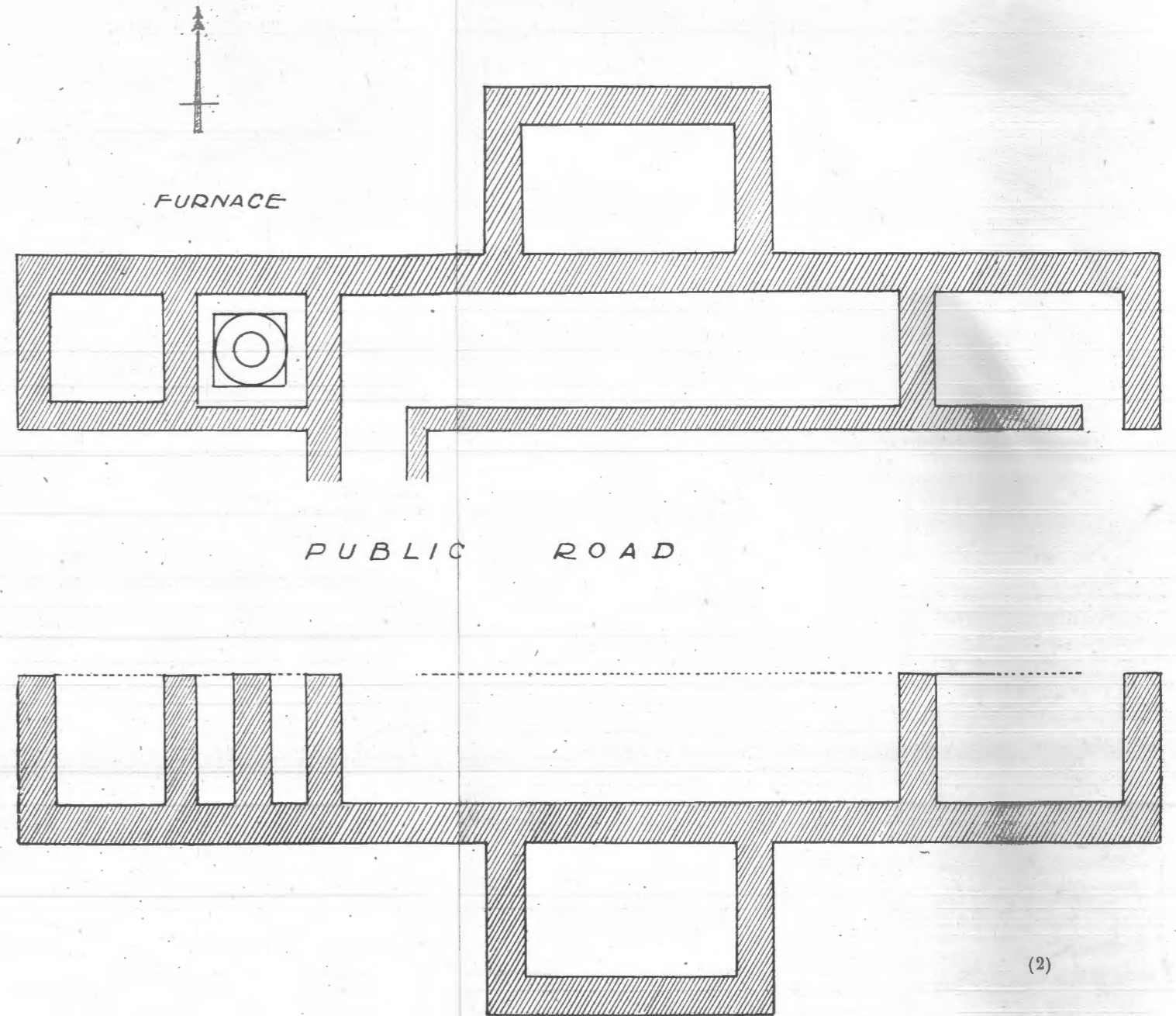
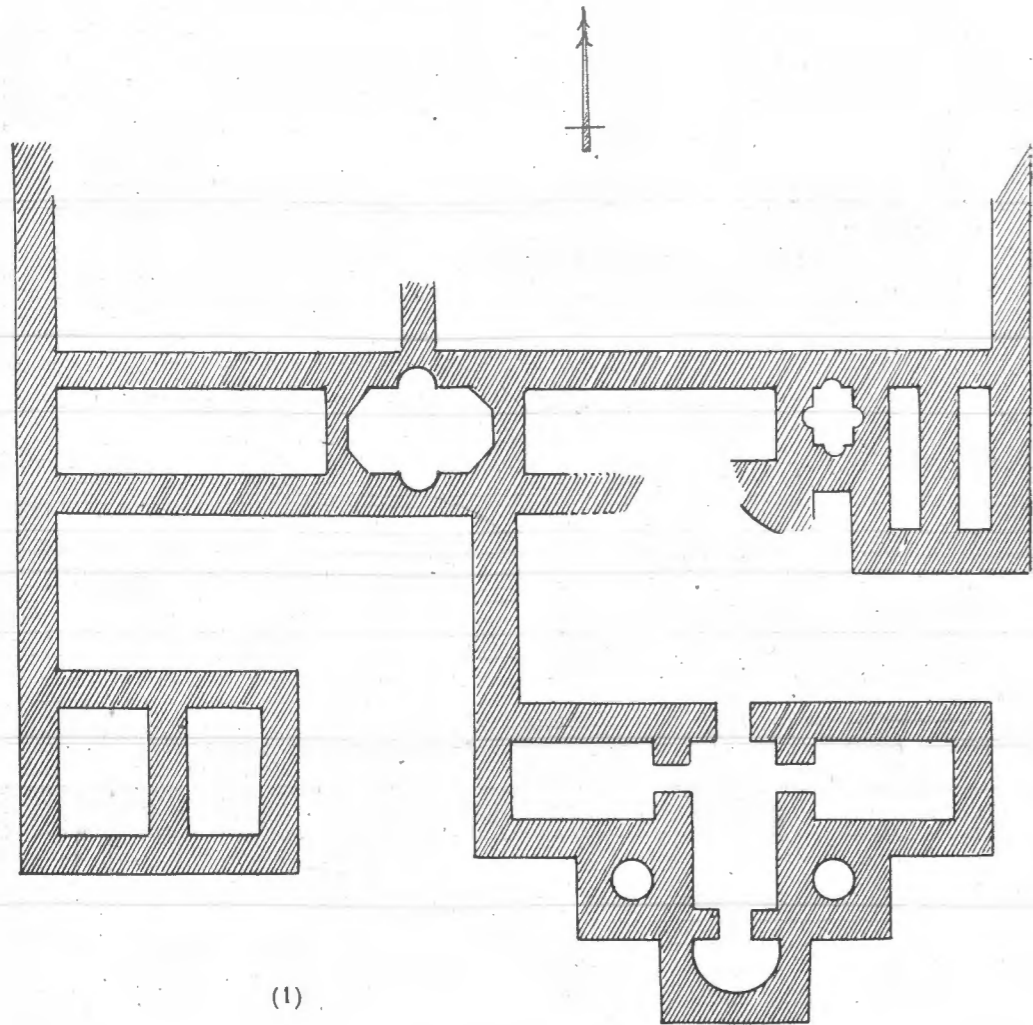


- DECOMBRES
- BRIQUES
- CARREUX EN PIERRE CALCAIRE
- PIERRES



MAM

Plan of Kôm el-Ahmar



Kôm Khobeiz.

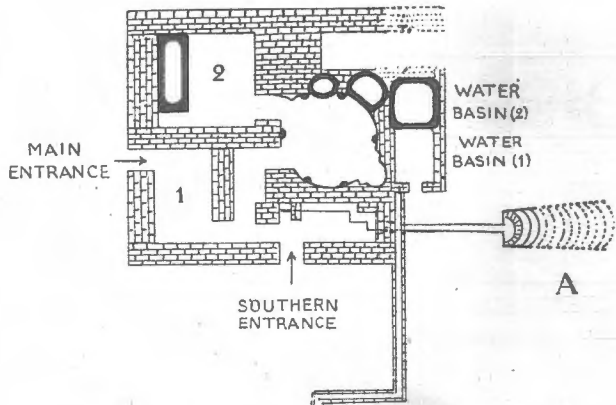
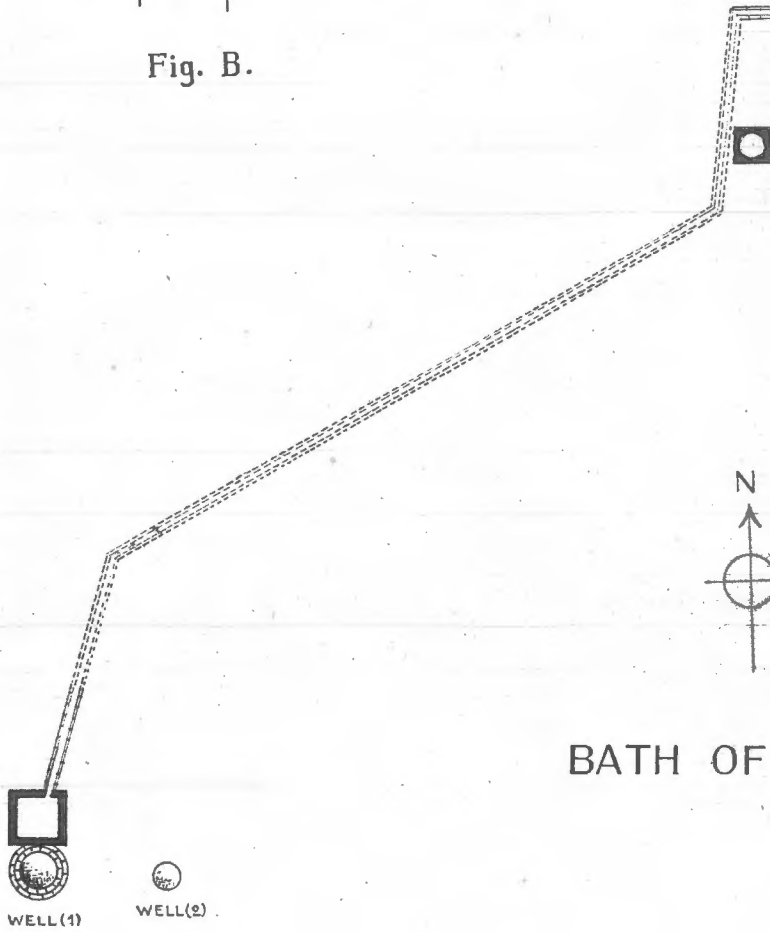


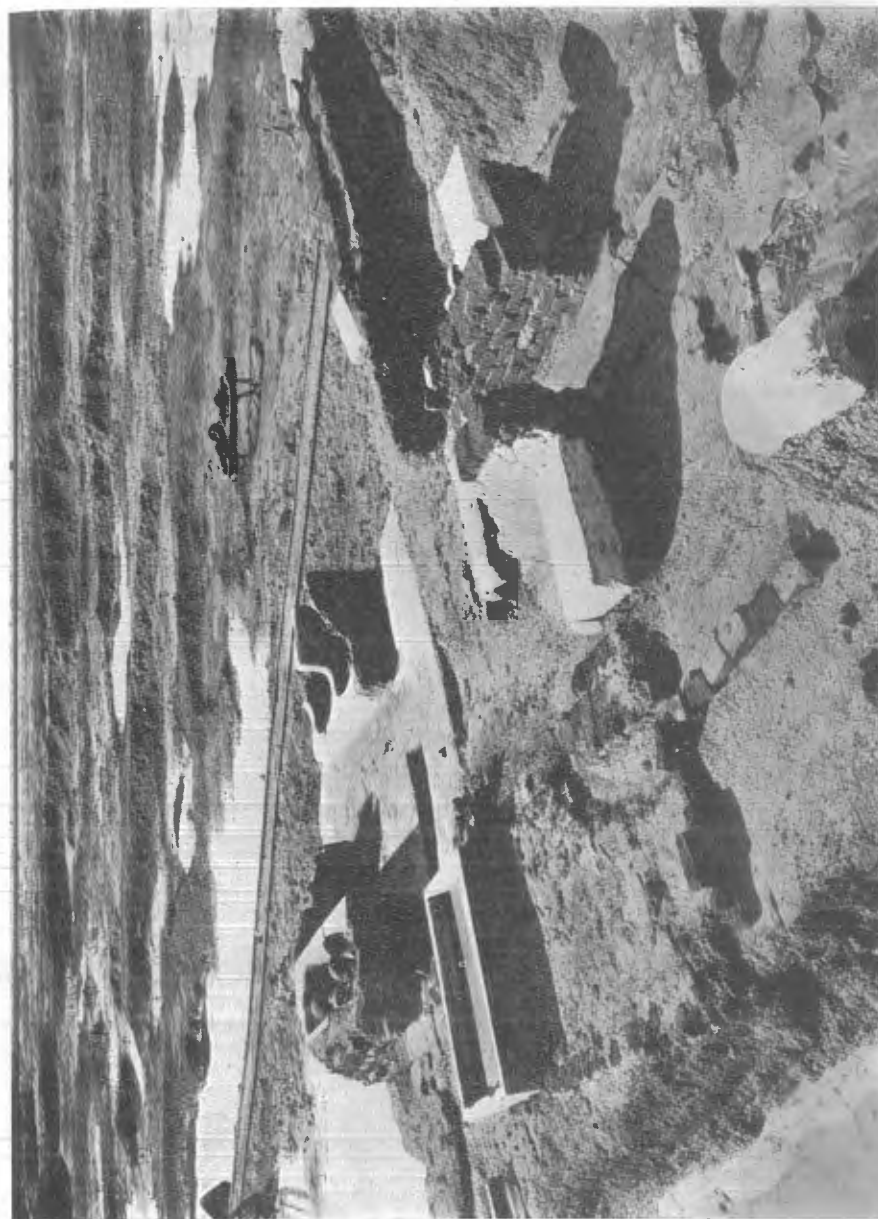
Fig. B.



BATH OF SAKHA



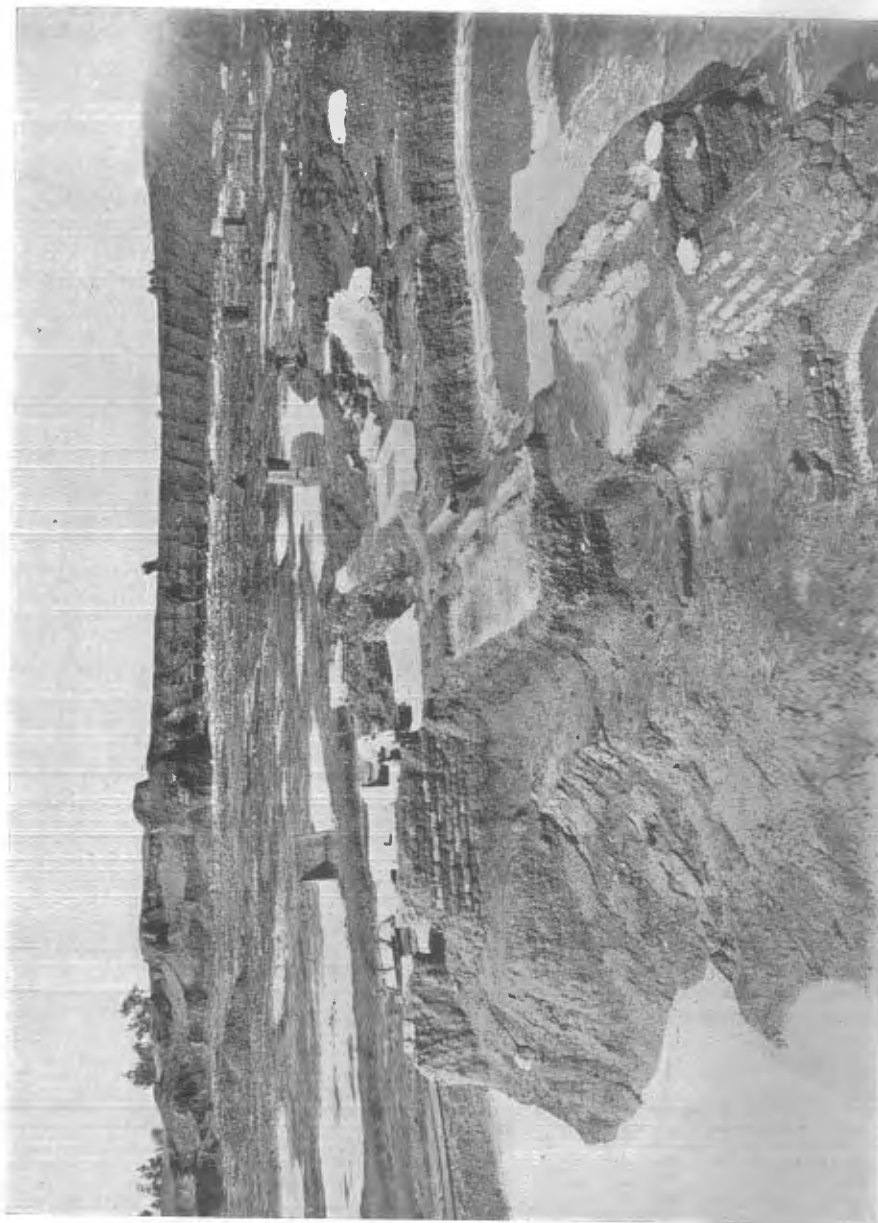
Well and its Reservoir.



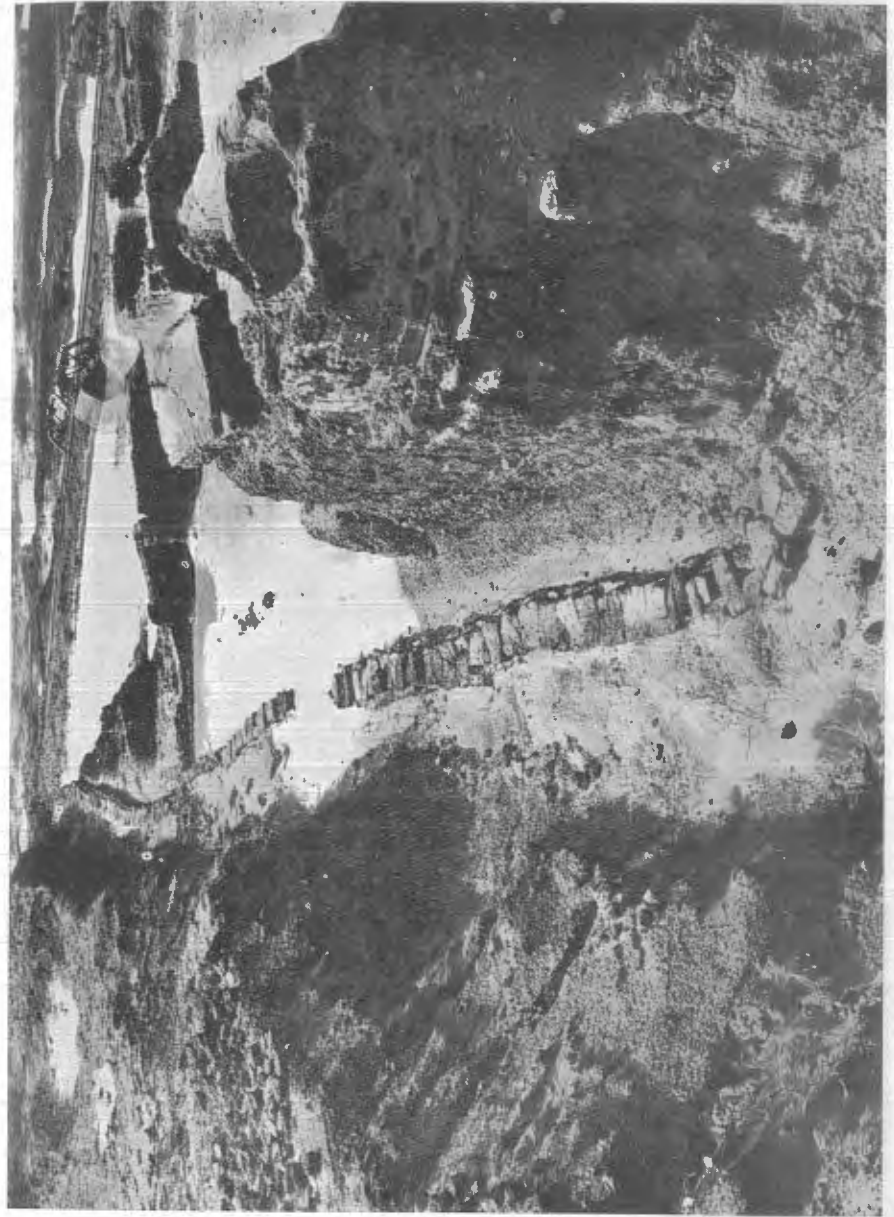
Specimens of basins.



A view of the Greek bath.



Tunnel containing the conduits.



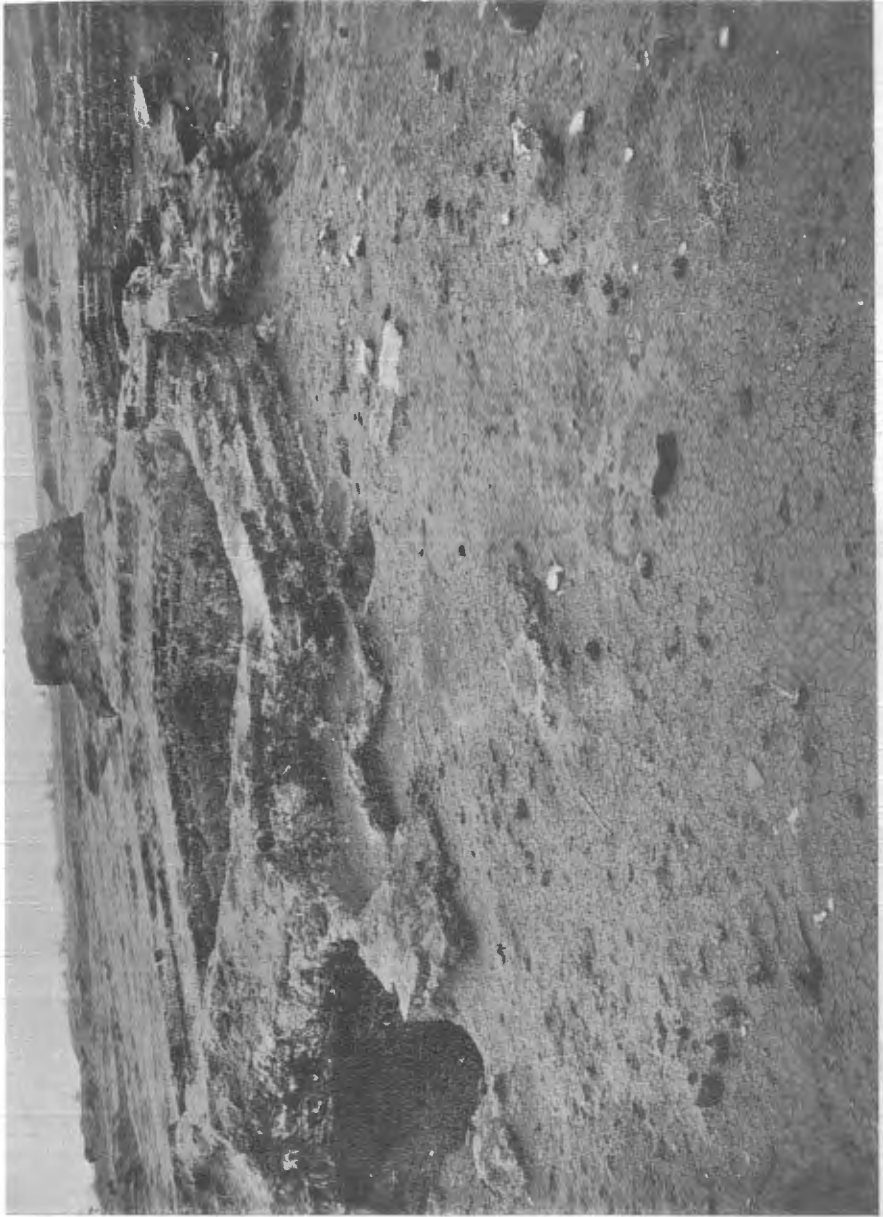
View of the channel.



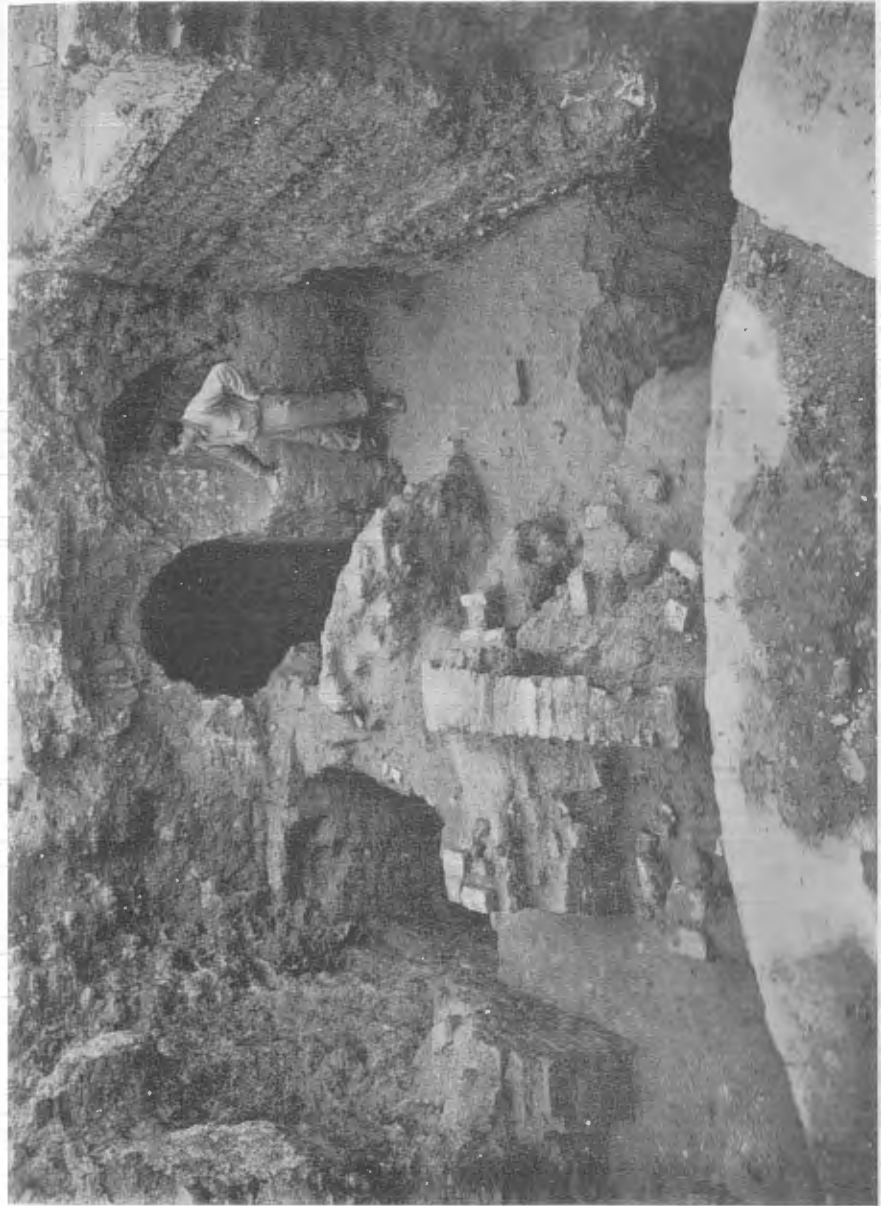
View of the bath of Kôm el-Ahmar and surroundings.



The altar of Kôm el-Ahmar.



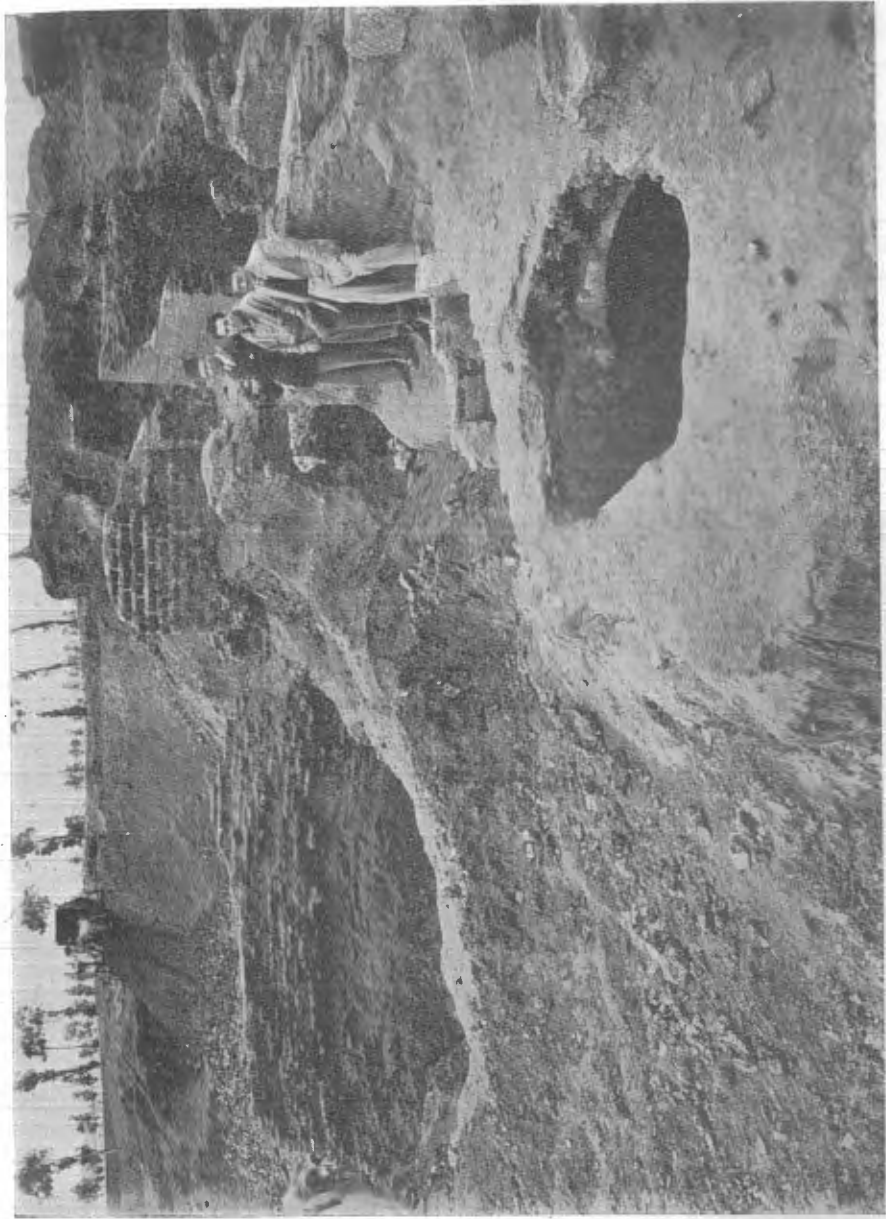
A view of the great piscina.



• The furfaces and the door of the suspensura.



Opening above the top step of the piscina leading to the caldarium.



View of the great well, the receptacle and the stone channel.

NUMISMATICS.

The coins found in Kôm el-Ahmar represent four periods :

The Ptolemaic, the Roman, the Byzantine and the Arabic period.

The Ptolemaic coins are all of bronze except one specimen of porcelain belonging to Ptolemy IV. These specimens were minted under the reign of Ptolemy I, II, III, IV, V, VI and VIII.

The Roman collection of Coins of Alexandria is of billon and bronze. It belongs to the reign of Claudius I, Nero, Galba, Vespasianus, Trajanus, Hadrianus and Aurelianus and (Aurelianus and Vaballathus) and Probus.

The Imperial coins are of the reign of Maximinus II Daza, Licinius Father, Constantinus I. These pieces are of middle and small bronze.

The Byzantine collection is all of bronze. It consists of one follis of 40 nummia ; the obverse of which is so obscure that one cannot guess the Emperor to whom it belongs. Then some other small and obscure specimens of 12 nummia minted in Alexandria, probably of the reign of Maurice Tiberius, Phocas and Heraclius.

Then two Arabic pieces, the first is an Arabic dinar of gold minted in the year 154 A. H. The second is a bronze piece very probably of the same period.



The collection of Sakha represents two periods : the Ptolemaic and the Roman. The Ptolemaic coins belong to the reign of Ptolemy II, IV, V and X, all are bronze.

The coins of Alexandria are of billon, belonging to the reign of Claudius I, Nero, Galba, Otho, Titus, Trajanus, Hadrianus, and one obscure specimen of bronze.


ABBREVIATIONS OF COINS'

CATALOGUES MENTIONED HEREAFTER.

- Sv. = SVORONOS; ΣΒΟΡΟΝΟΣ Τὰ νομίσματα τοῦ κράτους τῶν Πτολεμαίων.
 B. M. = R. S. POOLE, *Catalogue of Greek Coins*. The Ptolemies Kings of Egypt in The British Museum.
 FEUARDENT = *Numismatiques, Égypte Ancienne*. Vols. I and II.
 B. M. = R. S. POOLE; *Catalogue of the Coins of Alexandria and Nomes* in The British Museum.
 MILNE = MILNE; *Catalogue of Alexandrian Coins* in the Ashmolean Museum.
 COHEN = COHEN; *Médailles Impériales*.
 WROTH = W. WROTH; *Catalogue of Imperial Byzantine Coins*, in The British Museum.
 r. = right.
 l. = left.
 laur. = laureated.


OBVERSE.	REVERSE.	SIZE.
		cm.
Ptolemy I Soter, 323-284 B. C. <i>Bronze.</i>		
Head of Alexander, r., with elephant's skin.	... inscr. effaced. Eagle l., on thunderbolt, wings open, to l.  [Pl. XII, 1 P.]	23
	<i>Sv. No. 237, Pl. VIII, 13. B. M. P. 19, 46.</i>	
Head of Zeus, r., lau- reated.	ΠΤΟΛΕΜΑΙΟΥ ΒΑΣΙΛΕΩΣ Eagle l. on thunderbolt, wings open, to l.  [Pl. XII, 2 P.]	26
	<i>Sv. 303, Pl. X, 16. B. M. 14, 13.</i>	
Ptolemy Philadelphos, 284-247 B. C.		
Head of Zeus Ammon, r., laureated.	ΒΑΣΙΛΕΩΣ ΠΤΟΛΕΜΑΙΟΥ Eagle l., on thunderbolt, looking back, wings open. [Pl. XII, 3 P.]	48
	<i>Sv. 419, Pl. XVII, 1. B. M. 37, 159-163, Pl. VI, 4.</i>	
Head of Alexander, r., with elephant's skin.	ΠΤΟΛΕΜΑΙΟΥ ΒΑΣΙΛΕΩΣ Eagle l., on thunderbolt, wings open. [Pl. XII, 4 P.]	21
	<i>Sv. 416, Pl. XXIX, 15. B. M. Pl. XXIII, 10.</i>	

OBVERSE.	REVERSE.	SIZE.
Similar.	similar, but between legs, Δ . <i>Sv. 440, Pl. XVII, 16.</i>	cms. 32
Head of Zeus Ammon, r., laureated.	ΒΑΣΙΛΕΩΣ ΠΤΟΛΕΜΑΙΟΥ Eagle l., on thunderbolt, looking back, wings open. between legs \square . <i>Sv. 446, Pl. XVII, 2. B. M. 37, 158.</i>	48
Head of Zeus Ammon, r., laureated.	ΠΤΟΛΕΜΑΙΟΥ ΒΑΣΙΛΕΩΣ Eagle l., on thunderbolt, wings open, between legs ρ [PL. XII, 6 P.] <i>Sv. 501, Pl. XVIII, 19.</i>	19
Head of Zeus r., laureated.	ΠΤΟΛΕΜΑΙ..... insc. eff. Eagle l., on thunderbolt, wings open, between legs $\left[\wedge \right]$ obsc. to l. $\left[\Sigma \right]$ obsc. shield, (Rev. obscure). <i>Sv. 580, XIII, 20.</i>	28
Similar.	Similar to l. Σ shield \times [Pl. XII, 8 P.] <i>Sv. 581, XIII, 21. B. M. 46, 7-9 (\wedge for A).</i>	26
Head of Zeus Ammon, r., laureated.	...ΛΕΜΑΙΟΥ ΒΑΣΙΛΕΩΣ Eagle l., on thunderbolt, wings closed, in front, club. (obsc.) [Pl. XII, 9 P.] <i>Sv. 706, XX, 15. B. M. 53, 67.</i>	35

OBVERSE.	REVERSE.	SIZE.
Head of Zeus Ammon, r., laureated.	ΠΤΟΛΕΜΑΙΟΥ ΒΑΣΙΛΕΩΣ Eagle l., on thunderbolt, wings open, between legs ∇ ? to l., cornucopiae \times (star) Uncertain piece (Ptol. II or III).	cms. 29
Ptolemy III Evergetes I, 247-222 B. C.		
Head of Zeus Ammon, r., laureated.	ΠΤΟΛΕΜΑΙΟΥ ΒΑΣΙΛΕΩΣ Eagle l., on thunderbolt, wings closed, between legs \times , in front, cornucopiae (Fig. 6)	43-35
 <p style="text-align: center;">Fig. 6.</p> <p style="text-align: right;">[Pl. XIII, 10-11 P.]</p> <p style="text-align: center;"><i>Sv. 965, XXIX, 20. B. M. 55, 87-91.</i></p>		
Similar.	Similar, but behind neck cornucopiae, between legs \times obsc. [Pl. XIII, 12 P.] <i>Sv. 968, XXIX, 23. B. M. 55, 95.</i>	19
Head of Zeus Ammon, r., laureated.	ΠΤΟΛΕΜΑΙΟΥ ΒΑΣΙΛΕΩΣ Eagle l., on thunderbolt, looking back, behind neck cornucopiae, wings closed, between legs \square [Pl. XIII, 13 P.] <i>Sv. 974, XXIX, 12. B. M. 66, 37.</i>	39

OBVERSE.	REVERSE.	SIZE.
Similar.	similar, between legs Ξ [Pl. XIII, 14 P.] <i>Sv. 974, XXIX, 12. B. M. 66, 38.</i>	39 cms.
Head of Zeus, r., laureated.	$\Pi\Gamma\dots\text{BA}\Sigma\text{I}\dots$ inser obsc. Eagle l., on thunderbolt, wings open, between legs Ξ ; in front cornucopiae. [Pl. XIII, 15 P.] <i>Sv. 975, XXIX, 13. B. M. 47, 15-16. Pl. IX, 7.</i>	26 cms.
Head of Alexander, with elephant's skin, r.	$\Pi\text{ΤΟΛΕΜΑΙΟΥ ΒΑΣΙΛΕΩΣ}$ Eagle l., on thunderbolt, looking back, behind neck cornucopiae, wings closed, between legs Ξ (obsc.) <i>Sv. 976, XXIX, 14. B. M. 66, 41-42.</i>	24 cms.
Uncertain pieces belong to Ptolemy III or IV. (cf. <i>Sv. II, p. 177.</i>)		
Head of Zeus Ammon, r., laureated.	$\Pi\text{ΤΟΛΕΜΑΙΟΥ ΒΑΣΙΛΕΩΣ}$ Eagle l., on thunderbolt, wings closed, between legs Ξ to l., cornucopiae [Pl. XIII, 17 P. or 18 a P.] <i>Sv. 992-3. XXXV, 6-9. B. M. 74, 69-71. Pl. XVII.</i>	43-35 cms.
Similar.	similar, between legs Σ Ξ or Σ or Ξ [Pl. XIII, 18 a-b P.] <i>Sv. ibid. B. M. ibid.</i>	43 cms.
Similar.	similar, between legs Σ [Pl. XIII, 18 b P.] <i>Sv. B. M. ibid.</i>	34 cms.

OBVERSE.	REVERSE.	SIZE.
Similar.	similar, between legs Ξ [Pl. XIII, 17 P.] <i>Sv. B. M. ibid.</i>	34 cms.
Similar.	similar, but between legs Σ Ξ [Pl. XIII, 19 P.] <i>Sv. ibid. B. M. 74, 72.</i>	35 32 cms.
Head of Zeus Ammon, r., laureated.	$\Pi\text{ΤΟΛΕΜΑΙΟΥ ΒΑΣΙΛΕΩΣ}$ Eagle l., on thunderbolt, wings closed, behind neck, double cornucopiae, between legs Σ Ξ [Pl. XIV, 20 P.] <i>Sv. 994, XXXV, 10. B. M. 75, 78, 80-1.</i>	30 cms.
Ptolemy IV Philopator I, 222-204 B. C.		
Head of Zeus Ammon, r., laureated.	$\Pi\text{ΤΟΛΕΜΑΙΟΥ ΒΑΣΙΛΕΩΣ}$ Eagle l., on thunderbolt, wings closed, between legs Δ | to l., cornucopiae. [Pl. XIV, 21 P.] <i>Sv. 1125, XXXVI, 17 and 1127. (Pl. XII, 6) and 109-110. B. M. 56, 106; P 57, 107.</i>	44 35 cms.
Similar.	similar, but between legs Δ | [Pl. XIV, 22 P.] <i>Sv. 1126, 1128. B. M. 57, 109-110.</i>	44 35 cms.
Similar.	$\Pi\text{ΤΟΛΕΜΙΟΥ ΒΑΣΙΛΕΩΣ}$ Eagle l., looking back, wings open, on thunderholt, between legs Σ or Σ Ξ [Pl. XIV, 24 P.] <i>Sv. 1150, XXXVII, 11. B. M. 75, 73-75.</i>	38 cms.

OBVERSE.	REVERSE.	SIZE.
Similar. obv. (obsc).	similar, but between legs obscure. to l., countermark : cornucopiae [Pl. XIV, 25 P.] <i>B. M., 75, 76.</i>	35
Head of Zeus Ammon, r., laureated.	ΠΤΟΛΕΜΑΙΟΥ ΒΑΣΙΛΕΩΣ Eagle l., on thunderbolt, looking back, wings closed, behind neck cornucopiae, between legs \wedge <i>Sv. 1166, XXXIX, 16. B. M. 66, 36, XV, 3</i> (A for A.)	40
Similar.	same inscr. Eagle l., on thunderbolt, wings open, between legs \wedge , in front cornucopiae. [Pl. XIV, 27 P.] <i>Sv. 1169, XXXI, 19.</i>	28
Similar.	same inscr. Eagle l., on thunderbolt, wings closed, looking back, behind neck cornucopiae. [Pl. XIV, 28 P.] <i>Sv. 1172, XXXIX, 25.</i>	38
Ptolemy Philopator I. <i>Porcelain</i> ⁽¹⁾ .		
Head of Alexander, r., with elephant's skin.	..... MAI inscr. effaced Eagle l., on thunderbolt, wings open, to l., cornucopiae (Fig. 7) [Pl. XII, 29 P.]	16
		
	<p>Fig. 7. <i>Sv. mentions 2 pieces P. 190, 1175-76 but none is similar to that.</i></p>	

⁽¹⁾ Only two other pieces of porcelain were discovered by Maspero in Upper Egypt, in the ruins of Thebes to the north of the great temple of

OBVERSE.	REVERSE.	SIZE.
Ptolemy V Epiphanes. 204-181 B. C. <i>Bronze.</i>		
Head of Isis with long curls, bound with corn, r.	ΠΤΟΛΕΜΑΙΟΥ ΒΑΣΙΛΕΩΣ Eagle l., on thunderbolt, wings open. [Pl. XV, 30 P.] <i>Sv. 1234, VL, 11. B. M. 93, 69 sq.</i>	30 30
<p>Karnak. Maspero thinks that these pieces are money of necessity minted during some revolt in Egypt. (<i>Rev. num.</i>, 1891, p. 233, «monnaies de nécessité fabriquées pendant quelque révolte»). Babelon also is of that opinion (<i>BABELON, Traité</i>, II, vol. I, p. 337. «En 1891 Maspero a fait don au Cabinet des médailles de deux monnaies égyptiennes en porcelaine... Ces pièces trouvées dans la Haute Égypte sont sans doute des monnaies de nécessité fabriquées pendant quelque révolte»). Svoronos who accepted that opinion, very ingeniously assigned these two pieces to the reign of Ptolemy IV. Philopator, after the battle of Raphia in 217/6. B. C. [<i>ΣΒΟΡΟΝΟΣ, Τὰ Νομισματα τοῦ Κράτους τῶν Πτολεμαίων</i>, t. I. p. τ'-γγ' «<i>Νομισματα ἀπορίας, ἐκ πορσελλάνης, κοπέντα ἐπὶ τῆς ἀποστάσεως τῶν Αἰγυπτίων</i>» and t. II, nos. 1175-1176]. The result of the battle of Raphia, was the first rebellion stirred up by the Egyptians against the Ptolemies [mentioned by : Polyb. 5, 107; and Rosetta Stone; Svoronos, <i>ibid.</i>; BOUCHÉ-LECLERCQ, I, 315 and P. JOUGUET, <i>L'Impérialisme macédonien</i>, p. 254 and p. 387-388].</p> <p>Svoronos thinks that these two pieces were minted during that civil war [<i>ibid.</i>, p. τβ'] : «Ἐνεκα τοῦ ἐσωτερικοῦ τούτου πολέμου μεγάλη θὰ ἐνέπεσεν ἐν Αἰγύπτῳ ἐπὶ Φιλοπάτορος ἀπορία χρημάτων, ὡς βλέπομεν ἐκ τῶν μέτρων, ἅτινα ἀναφέρει ἡ ἐπιγραφή τῆς Ρωσσέτης, ὅτι ἔλασεν ὁ διάδοχος αὐτοῦ πρὸς ἀνακούφισιν τῆς χώρας, «ὅπως ὁ τε λαὸς καὶ οἱ ἄλλοι πάντες ἐν εὐθηνίᾳ ὦσιν ἐπὶ τῆς ἐαυτοῦ βασιλείας». Δυνάτὸν ἄρα κατὰ σιγμὴν τινα τῆς ἐπὶ Φιλοπάτορος χρηματικῆς ἀπορίας νὰ ἐκόπησαν τὰ ἐν λόγῳ ἐξ εὐτελοῦς ὕλης νομισματα.»</p> <p>Because of the provenance of those two pieces (Upper-Egypt) Svoronos made another hypothesis. He thinks that Philopator was a friend and ally of the king of Ethiopia, Ergamen, who was imbued with Greek Culture and Philosophy. The two kings made conjointly some constructions (<i>Svor. ibid. τβ'</i>; MAHAFFY, <i>Hist. of Eg. in the Ptolem. Dyn.</i>, 139 sq. and JOUGUET, <i>op. cit.</i>, p. 319). Svoronos holds that the first of the two pieces from Karnak was minted by Ergamen, on the assumption that the letter A [possibly denoting the name of Ergamen], was engraved between the legs of the eagle on the reverse of the coin. «<i>δηλώσαντος ἐαυτὸν διὰ τοῦ μεταξύ τῶν ποδῶν τοῦ</i></p>		

OBVERSE.	REVERSE.	SIZE.
		cms.
Ptolemy VI Philometor, 181-146 B. C.		
Similar.	similar [Pl. XV, 31 P.] <i>Sv. 1384, XLVII, 11. B. M. 89, 6-11, XXI, 3?</i>	29
Head of Zeus Ammon, r., laureated.	Two eagles l., wings closed on thunderbolt, to l. double cornucopiae. [Pl. XV, 32 P.] <i>Sv. 1424, XLVIII, 9-11. B. M. 106, 30, XXVI, 8</i>	29
Ptolemy VI or VIII.		
Head of Cleopatra IIrd. or IIIrd. with elephant's skin, r., (<i>Sv. loc. cit., obv.</i>) head of Alexan- dreia?)	..... B.Σ... Insc. eff. Eagle l., on thunderbolt wings open. (rev. obscure) <i>Sv. 1386, XLVII, 14. B. M. 98, 127, XXIII 10.</i>	22
<p>ἀετοῦ (A=Argamen ἐν ταῖς αἰγυπτιακαῖς ἐπιγραφαῖς)». Cf. <i>Svor.</i>, t. II, n° 1175 :</p> <p>Ob./ Head of Alexander the great r., with elephant skin. Rev./ Eagle l., on thunderbolt, looking back, behind cornucopiae, between legs ↙.</p> <p>That letter stands for Ergamen as some kings under the suzerainty of the Ptolemies, for example, Magas, did the same with their coins (<i>Svor.</i>, <i>ibid.</i>, t. I, 77). But this opinion is highly improbable.</p> <p>Our monument mentioned here, found at Kôm el-Ahmar in the Delta, may be dated to the first phase of the war or the second. That is to say that it might have been minted earlier than the two pieces of Karnak or simultaneously with them. The rebellion which flared up in Middle Egypt and in the Delta, was by 206 B. C., the 16th year of reign of Philopator, widespread and comprised the whole of Egypt from the Northern to the Southern extremity of the country. Cf. MAHAFFY, <i>ibid.</i>, p. 141; JOUGUET, <i>ibid.</i>, p. 254 and p. 388.</p>		

OBVERSE.	REVERSE.	SIZE.
		cms.
Ptolemy VIII, 169-146 B. C.		
Head of Heracles r., with lion's skin.	ΠΤΟΛΕΜΑΙΟΥ ΒΑΣΙΛΕΩΣ Eagle l., on thunderbolt, wings closed. [Pl. XV, 34 P.] <i>Sv. 1492, LI, 11. Feuardant X, 530. B. M. 69, 8.</i>	29
Similar.	similar [Pl. XV, 35 P.] <i>Sv. 1494, LI, 14. B. M. 69, 9-10.</i>	25
Uncertain pieces.		
Ptolemy III ?		
Head of Zeus Ammon, r., laureated.	inscr. eff. Eagle l., on thunderbolt, wings closed, between legs [✕] ?? in front, cornucopiae.	35
Similar.	ΠΤΟΛΕΜ[ΑΙ]ΟΥ ΒΑΣΙΛ, . . . eff. Eagle l., on thunderbolt, wings closed, looking back, behind neck cornucopiae, between legs (?) eff.	40
Ptolemy III or IV.		
Similar.	inscr. eff. Eagle l., on thunderbolt, wings closed, behind neck two cornucopiae, between legs (✕) ? obsc.	32

OBVERSE.	REVERSE.	SIZE.
Ptolemy VI ?		
Head of Cleop. II ?, with long curls, bound with corn. (obscure)	[ΠΤΟΛΕΜ]ΑΙΟΥ [ΒΑ]ΣΙΛΕΩ[Σ] obscure Eagle l., on thunderbolt, wings closed, behind neck (?), looking back. (Rev. obscure) [Pl. XV, 36 P.] B. M. 79, 10, XVIII, 9. Feuard. I, 258.	22 cms.

Imperial Coins of Alexandria.

YEAR OF REIGN.	OBVERSE.	REVERSE.	MEAS.
Claudius I, 41-54 A. D. <i>Billon.</i>			
3	ΤΙΚΛΑΥΔΙΚΑΙΣ- ΣΕΒΑ..... eff. Head r. laureated, in front, [L]	ΜΕΣΣΑΛΙ ΝΑ ΚΑΙΣ ΣΕΒΑΣ Messalina as Demeter standing l., holds two figures as her children, and ears of corn, l. arm rests on column. [Pl. XVII, 2, 3 R.]	24
5	...ΑΥΔΙΚΑΙ... eff. similar in front [E]	...ΝΑ ΚΑΙΣ...- (insc. eff.) similar. [Pl. XVII, 5 R.]	26

YEAR OF REIGN.	OBVERSE.	REVERSE.	MEAS.
Nero, 54-68 A. D. <i>Billon.</i>			
3	....ΚΛΑΥΚΑΙΣ ΣΕΒΓΕΡΑ... Head r., laureated.	ΟΚΤΑΟΝΙΑ ...ΣΤΟΥ (inscr. obsc.) bust of Octavia, r. in front, [L]	25
3	inscr. (obscure) similar.	ΠΡΩΝ. ΝΕΟΥΣ... eff. Emperor sitting l., radiated holds roll, and sceptre. in front, [L] [Pl. XVII, 12-13 R.]	24
3	ΝΕΡΚ.... eff. similar.	ΔΗ ΜΗ... obsc. Demeter in chiton, standing l., holds sceptre and ears of corn. in front, [L]	23
4	....ΚΑΙΣ ΣΕΒΑ ΓΕΡ..... eff. similar.	[ΝΕΟ]ΑΓΓΑΘ.ΔΑΙΜ... eff. Serpent Agathodaimon r., wears skhent, enfolds ears of corn, and poppy-heads. in front, [Δ]	23
10	.ΕΡΩΚΛΑ... bust r., laureated.	..Π... inscr. effaced. bust of Poppaia r. in front, [L] obsc.	25
10	.... eff. bust r., radiated.	Similar in front, [L] [Pl. XVIII, 21-22 R.]	25

YEAR OF REIGN.	OBVERSE.	REVERSE.	MEAS.
11	NEPΩK[Λ]AYK... Head r., radiated.	.... eff. similar. in front, [ΛA] obsc. [Pl. XVIII, 27, 28 R.]	25
11	NEPΩ... obscure. similar.	[AV TO] KPA Eagle l., besides palm. in front, [ΛA] [Pl. XIX, 31-33 R.]	25
12	NEPΩKAA... eff. similar.	.... KPA bust of Alexandria r., with elephant's skin. in front, [ΛB] [Pl. XIX, 34 R.]	25
13	N... eff. bust l., radiated, in front, [ΛΓ]	[ΘEOΣ] ΣΕΒΑΣΤΟΣ head of Augustus r., radiated. [Pl. XIX, 36 R.]	23
13	NEPΩKAA... similar in front, [ΛΓ]	ΤΙΒΕΡΙΟΣ ... eff. head of Tiberius r., laureated. [Pl. XIX, 37 R.]	24
13	N... plundered. similar in front, [ΛΓ]	.... οφο... eff. Galley sailig r. [Pl. XIX, 41 R.]	25
?	.... insc. eff. bust l., radiated date eff. ?	..... ΑΠΟΛΛΩΝ bust of Apollon r., laur., behind shoulders, (?) eff. (piece very obscure).	24

YEAR OF REIGN.	OBVERSE.	REVERSE.	MEAS.
		Galba, 68-69 A. D. <i>Billon.</i>	
1	[ΛO]YKAIBΣ... eff. head r., laureated, in front, [Λ]	.... ΔΡΕΑ bust of Alexandria r., with elephant's skin.	26
		Vespasianus, 69-79 A. D. <i>Billon.</i>	
3	.... insc. eff. head r., laureated. in front, [Λ]	Niké advancing l., holds wreath and palm.	23
		Trajanus, 98-117 A. D. <i>Billon.</i>	
?	..*PAIPAN [CEB] ΓΕΡΜ ΔΑ... (obsc.) Head r., laureated.	Serpent Agathodaimon r., wears skhent, enfolds winged caduceus and ears of corn. in ex., date (?) eff.	22
		Hadrianus, 117-138 A. D. <i>Bronze.</i>	
17	ΑΥΤΚΑΙC ΤΡΑΙΑΝ ΑΔΡΙΑΝΟCCEB bust r., laureated, wears paludamentum and cuirass.	Bull. Apis r., disk between horns; on flanks crescent, in front altar, above, [ΛZ] [Pl. XVI, 60 R.]	24

YEAR OF REIGN.	OBVERSE.	REVERSE.	MEAS.
18	ΑΥΤΚΑΙΤΡΑΙΑΝ ΑΔΡΙΑ..... similar (piece broken).	Athena of Sais (Neit) standing r., holds owl r., and spear, behind her shield. in field, [L] IH [Pl. XVI, 61 R.]	33
19	...ΑΙΑΝ... inscr. eff. similar (half piece).	Phoros represented as a circular tower, surmounted by (lantern) ? on side of it a Triton blowing buccinum. (half piece). .. ΕΑΚΔ [Pl. XVI, 62 R.]	28
?	.... inscr. eff. similar (obv. obscure).	Isis Pharia r., wears headress (?), holds inflated sail with both hands and l. foot, in r. hand sistrum. date eff. (rev. obsc.) [Pl. XXII, 63 R.]	33
Antoninus Pius, 138-161 A. D. Bronze.			
12	....ΑΔΡ..... inscr. eff. bust r. laureated, wears paludamentum and cuirass.	Isis Pharia standing r., wears horns, disk and plumes, clad in chiton and peplos, which flies behind her, holds inflated sail with both hands and l. foot, in r. hand sistrum, before her Pharos represented as square tower, seen at angle, surmounted by an open latticed circular lantern, on summit (statue holds situla and sceptre (Isis Pharia ?) (obsc.); on either side of lantern a Triton blowing buccinum. ΔΩΔΕ ΚΑΤ Ο. [Pl. XVI, 64 R.]	37

YEAR OF REIGN.	OBVERSE.	REVERSE.	MEAS.
16	....ΒΕΥCAYTKTAI ... obsc. head l., laureated.	Tyché reclining l., wears modius, long chiton and peplos, holds with r. hand rudder, and supports head with l. hand, on draped couch. above, LIC [Pl. XVI, 65 R.] B. M. and Milne. ??	33
	.... ΑΝΤΩΝΙΝ... bust r., laureated, wears paludamentum and cuirass.	Bust of Sarapis, wears modius, over eagle facing, head l., wings spread. in field, L IZ [Pl. XVI, 66 R.]	36
?	... inscr. obsc. bust r., laureated, wears paludamentum and cuirass.	Nilus recumbent l., crowned with lotus ?; himation over lower limbs, holds cornucopiae from which springs infant, genius ?, in l. hand reed, beneath, crocodile r., above (is ?) date eff. (rev. plundered and obscure). [Pl. XXII, 67 R.]	35
Gallienus 260-268 A. D. (dates of Valerianus, begin from year 253 A. D.) Billon.			
12	ΑΥΤ..... ΑΛΛΙΗ- NOCCEB. Similar.	Eagle facing, head l., supports on outspread wings laurel wreath, to r. palm. [Pl. XXI 2 R.] within wreath, LIB	21
14	ΑΥΤΚΠΛΙ . ΓΑΛΛ- ΙΗΝ... eff. Similar.	Eagle l., looking back, wreath in beak, behind palm, wings closed in front, [LID] obsc. [Pl. XXI, 1 R.]	22

YEAR OF REIGN.	OBVERSE	REVERSE.	MEAS.
15	[AVTKΠ]ΛΙΚΓΑΛΛ- ΙΗΝΟCCEB. Similar.	Similar in front, [L]E	22
15	[K]ΟΡΝΗΛΙΑ CΑΛ- ΩΝΕΙΝΑCΕB. obsc. bust r., wears stephane.	Eagle r., wreath in beak, wings open, behind palm. in front, LIE [Pl. XXI, 3 R.]	22
Claudius II, 268-270 A. D. <i>Billon.</i>			
2	[AV]TK[K]..... CCEB bust r., laureated wears paludamen- tum and cuirass.	Poseidon l., naked, stooping r., foot on dolphin, holds sword (?) and trident. in field, L B [Pl. XXI, 4 R.]	23
2	[AVTKKAA] VΔ- IOCCEB Similar.	bust of Anubis r., wears modius with lotus petal in front, on l. shoulder himation, in front wing- ed caduceus and palm combined, behind, L B [Pl. XXI, 5 R.]	23
2	Similar.	Eagle r., wreath in beak, wings closed palm transversely, in field, L B [Pl. XXI, 6 R.]	22
2	Similar.	Eagle r., wreath in beak, looking back, wings closed. in field, L B	22
2	Similar.	Eagle l., wreath in beak, looking back, wings closed. in field, L B	22

YEAR OF REIGN.	OBVERSE.	REVERSE.	MEAS.
3	Similar.	Eagle r., wreath in beak, wings closed, palm transversely. in field, L Γ [Pl. XXI, 7 R.]	22
?	AVTKKAA YΔ- IOCCEB bust r., laureated, wears paludamen- tum and cuirass.	Dikaiosyné seated l., holds scales and cornucopiae. in front. date eff. [Pl. XXI, 8 R.]	21
?	Similar.	Niké advancing r., holds wreath and palm. in front, date eff. [Pl. XXI, 9 R.]	22
Aurelianus, 270-275 A. D. <i>Billon.</i>			
1	....PHAIANOCCEB (obscure) bust r., laureated, wears paludamen- tum and cuirass.	Eagle r., wreath in beak, wings closed, palm transversely in field, L A	22
3	AKAΔOMAVPHA- IANOCCEB similar.	similar in field, L Γ	22
3	Similar.	Eagle l., looking back, wreath in beak, wings closed, in field, L Γ	22
4	AYTKAΔAVPHAI [ANOCCEB] similar.	Dikaiosyné standing l., holds cornu- copiae and balance. in front, L ^Δ [Pl. XXI, 10 R.]	22

YEAR OF REIGN.	OBVERSE.	REVERSE.	MEAS.
4	ΑΚΛΔΟΜΑΥΡΗΛΙΑΝΟCCEB. similar.	Eagle l., wreath in beak, wings closed. in front, L ^Δ behind star [Pl. XXI, 11 R.]	23
4	insc. obscure similar.	Eagle r., looking back, wings open, holds wreath with talons. to r., L ^Δ above*	[Pl. XXI, 12 R.] 23
4	ΑΚΛΔΟΜΑΥΡΗΛΙΑΝΟCCEB similar.	Eagle l., looking back, wings open, wreath in beak, between two vexilla. above, L ^Δ *	[Pl. XXI, 13 R.] 23
5	.... ΜΑΥΡΗΛΙΑΝΟCCEB similar.	Eagle r., wings open, wreath in beak, behind star. in front, L [€] [Pl. XXI, 14 R.] (B. M. and Milne, is not mentioned).	21
5	.... insc. obscure similar.	Eagle, facing, looking r., wreath in beak, wings open. in field, ΕΤΟΥC Ε	[Pl. XXI, 15 R.] 23
5	[ΑΥΤ]ΚΛΔΟΜΑΥΡΗΛΙΑΝΟCCEB similar. (B. M. insc. different.)	Laurel wreath. within, ΕΤΟΥC Ε	[Pl. XXI, 16 R.] 23



YEAR OF REIGN.	OBVERSE.	REVERSE.	MEAS.
?	.... ΡΗΛΙΑΝ... obscure similar.	Alexandria standing l., wears cap turreted; holds head of Sarapis r., with modius, and rests on sceptre. in field, L (?) eff. [Pl. XXI, 17 R.]	21
Aurelianus Augustus and Vaballathus Imperator, 270 A. D. Billon.			
1	ΑΚΛ[ΔΟ]ΜΑΥΡΗΛΙΑΝΟCCEB bust r., laureated, wears paludamentum and cuirass. in front, L _A	[ΙΑCΟVΑ]ΒΑΛΛΑΘΟCΑΘΗΝ [VACP] (obsc.) bust r., laur. and with diadem, wears paludamentum and cuirass. in field, L Δ	[Pl. XXI, 18 R.] 22
2	ΑΚ... ΜΑΥΡΗΛΙΑΝ... ... eff. similar in front, [L B] (date eff).	[ΙΑ]CΟV[ΑΒ]ΑΛΛΑΘΟC... (plundered) similar in field, L Ε	[Pl. XXI, 19 R.] 22
Probus, 276-282 A. D. Billon.			
5	ΑΚΜΑΥΡΠΡΟΒΟCCEB. bust r., laureated, wears cuirass.	Niké advancing r., holds wreath and palm bound with fillet. in front, L [€] [Pl. XXI, 20 R.]	21
7	... ΠΡΟ[B]... inscr. plundered similar.	Eagle facing, looking r., wreath in beak, wings closed. in field, L Z	21


Roman Coins.

OBVERSE.	REVERSE.	PLACE OF MINT.	MEAS.
Maximinus II. Doza, 305-313 A. D. <i>Bronze.</i>			
IMP C GAL VAL MAXIMINVS PF AVG. Head r., laureated.	GENIO AVGVSTI Genius standing, facing, looking l., wears modius, holds head of Sarapis r., wearing modius, and cornucopiae, himation on l. shoulder; to l. (palm) obsc. in field, (?) € in ex. ALE (obsc.) [Pl. XXII, 4 B.]	Alexan- dria	21
IMP.C.G..... VSPFAVG insc. eff. head r., laureated.	GENIOIMP ERATORIS. (insc. obsc.) Genius standing, facing, looking l., holds patèra and cornucopiae. in field, K [Γ] obsc. P in ex. ALE (Rev. obscure). [Pl. XXII, 2 B.]	Alexan- dria	25
Licinius Father 307-323 A. D.			
IMPC VAL LIC LIC INIVS PF AVG head r., laureated.	[GENI]OIMP E RATORIS. similar to l., * in ex. HTΘ [Pl. XV, 3 R.]	Heracleia ?	25

OBVERSE.	REVERSE.	PLACE OF MINT.	MEAS.
Constantinus I, 306-337 A. D.			
FLVALERCONSTA- NTI[N]VS PF AVG head r., laureated.	GENIO AVGVSTI Genius standing facing, wears mo- dius, holds head of Sarapis r., wearing modius; and cornucopiae himation over l. shoulder. in field, [?] A in ex. [ALE] [Pl. XXII, 1 B.]	Alexan- dria	1
CONSTANTI NVS- MAXAVG bust diad. r., wears paludamentum.	[G]LOR IAEXERC ITVS Two soldiers standing, facing each other, holding sceptres and rest- ing on shields, between them two vexilla in ex [.] Δ (eff.)	?	2
VRBS ROMA Bust of Roma hel- meted, wears pa- ludamentum, head of Roma l.	No legend : Wolf l., suckling Romullus and Re- mus, head of wolf r. above two stars. in ex SMALA Cohen, t. VI, p. 179, n° 13 (1).	?	1
<p>(1) Constantinus may have minted some of these pieces, bearing head of Constantinople or Roma or Genius of Roman People. It is not sure that all this collection belongs to this reign, and that of Constantinus II. Cohen thinks that «c'est au règne de Constant I, qu'on peut fixer la première apparition de ces pièces». (Médailles Impériales, t. VI, p. 174, n. 1.)</p>			

OBVERSE.	REVERSE.	PLACE OF MINT.	MEAS.
IMP C FL..... ANTINO PF IVN AVG ⁽¹⁾ head r., laureated (inscr. plundered).	IOVICON S E(RVAT)ORI Jupiter standing l., holds globe and sceptre, himation over l. shoulder, to l. at his feet (eagle) ? l., with wreath in beak ? in ex., HTΔ	Heraclea ?	24
Byzantine Coins			
Maurice Tiberius ? 582-602 A. D.			
<i>Bronze.</i>			
Inscr... effaced bust of (?) r., dia- demed, with palu- damentum and cui- rass. (obverse very ob- scure).	M in middle, on l. star; on r. cross; above cross; beneath Δ? (obsc.) in ex. [CON..] ? obscure. (Follis of 40 nummia).	Constan- tinople	39
Insc. obsc. and eff. bust of Maurice ? Tiberius ? r., wears diad., paludamen- tum and cuirass.	^{12 NUMMIA.} I + B between them cross in ex., AΛΕΞ (obsc.).	Alexan- dria	15
Phocas ? 602-610 A. D.			
Insc. eff. bust of Phocas ?? r., wears diadem, paludamentum and cuirass (obsc.)	I + B similar in ex., AΛΕΞ	Alexan- dria	15
⁽¹⁾ Uncertain piece, the rest of the legend on the obverse may be that of Constantinus I or II ?; but the head resembles that of Licinius Father ?			

OBVERSE.	REVERSE.	PLACE OF MINT.	MEAS.
similar, but very obsc. and plun- dered.	I + B in middle cross rests on steps; in ex., [A] AΕ. (plundered) [Pl. XXII, 8 B.]	Alexan- dria	15
Heraclius, 610-641 A. D.			
Three figures stand- ing facing, crown- ed. with 3 cross- es, every one holds cross and wearing long robes. Heraclius in middle and on both sides, Marti- na and Heraclius Constantine obv. very obscure.	I + B between them cross potent, beneath which  in ex., AΛΕΞ (rev. obsc.).	Alexan- dria	20
similar, (obv. very obsc.)	I + B between them cross potent, beneath  (instead of steps). in ex., AΛΕ. (rev. obsc.).	Alexan- dria	20
similar (obsc.)	I + B between them cross, on Δ (instead of steps). in ex., .ΛΕΞ (very obsc.).	Alexan- dria	20
similar (obv. effa- ced and obscure).	I + B between them globus cross. in ex., AΛΕ. (rev. obscure).	Alexan- dria	20

OBVERSE.	REVERSE.	PLACE OF MINT.	MEAS.
Two fig. standing facing perhaps Herac. and Constant. ?, between them long cross on steps.	I + B between them globus cross, rests on Δ instead of steps. in ex., AA... (obscure).	Alexandria	18
Arabic Coins <i>Gold.</i>			
محمد رسول الله أرسله بالهدى ودين الحق ليظهره على الدين كله في الوسط لا اله الا الله وحده لا شريك له Mohamed is the Prophet of Allah. He has sent him for the guidance of (of men), and with the Faith, that he may make it victorious over all (other) Faiths. <i>in field:</i> there is no God but Allah, there is no (equal allah to him).	بسم الله ضرب هذا الدينار سنة اربع وخمسين ومائة في الوسط: — محمد رسول الله In the name of Allah this dinar was minted in the year 154 A. H. = 771 A. D. <i>in field:</i> Mohamed is the Prophet of Allah. (translation of professor Waddell <i>Eg. Gazette</i> , June 4th 1943). 4 grammes [Pl. XXII, 11 A.]		19
			
Fig. 8.			
<i>Bronze.</i>			
لا اله الا الله وحده There is no God but Allah alone.	محمد رسول الله Mohamed is the Prophet of Allah.		19

Coins found at Sakha ⁽¹⁾

Ptolemaic Part.

OBVERSE.	REVERSE.	MEAS.
Ptolemy Philadelphos, 285-246 B. C.		
Head of Zeus Ammon r., laureated.	.... insc. obscure. Eagle l., on thunderbolt, wings open, between legs (?) (obscure). (rev. obscure). <i>Sv. 452? XVII, 18-19. B. M. 57.</i>	20
Head of Zeus Ammon r., laureated.	ΠΤΟΛΕΜΑΙΟΥ [BA]ΣΙΛΕΩΣ. Eagle l., on thunderbolt, wings open, between legs A? obsc. to l. [Σ] obsc. shield [rev. obsc.] [Pl. XV, 38 P.] <i>Sv. 560 or 580?, XIII, 20.</i>	30
Philopator I, 222-204 B. C.		
similar.	inscr. eff. Eagle l., on thunderbolt, wings open, looking back, between legs ΓΓ? obscure. to l., countermark: cornucopiae. [Pl. XVI, 39 P.] <i>Sv. 1144 [but without countermark].</i>	38
<p>⁽¹⁾ A disposit including coins of Dieaea, Lete, Aegina, Corinth, Naxos Paros, Ceps Clazomenae, Ialysus and Lindus in Rhodes and Cyrene was also discovered in Sakha, cf. GARDNER, <i>A history of ancient Coinage</i>, p. 60; also Num. Chr. 1899, p. 269. Also one athenian coin from the time of Eupatridae, was found in Sakha (cf. SELTMAN, <i>Athens its history and coinage</i>, p. 32).</p>		

OBVERSE.	REVERSE.	MEAS.
Head of Zeus Ammon, r., laureated.	..... inscr. effaced. Eagle l., on thunderbolt looking back, wings open, between legs (obscure) to l., countermark : cornucopiae [Pl. XVI, 40 P.] Sv. 1150, XXXVII, 11.	36
Similar (but very obsc.).	..... inscr. effaced. Eagle l., on thunderbolt, wings open, between legs (obscure) to l., cornucopiae. Sv. 1169, XXXIX, 19.	28
Ptolemy V Epiphanes I, 204-181 B. C.		
Head of Isis r., with long curls bound with corn (plundered).	..... ΒΑΣ... plundered Eagle l., on thunderbolt, wings open. (Rev. plundered) [Pl. XVI, 42 P.] Sv. 1233, XL. 11. B. M. 93, 67-68, XXII, 5.	35
Ptolemy VI Philometor, 181-146 B. C.		
Head of Cleopatra II? with elephant's skin. Sv. (head of Alexandria).	..... ΑΙΟΥ ΒΑΣΙΛΕΩΣ Eagle l., on thunderbolt, wings open. [Pl. XV, 43 P.] Sv. 1386, XLVII, 14 (to l., a monogr.). B. M. 99, 127, XXIII, 10.	24
Head of Zeus Ammon r., laureated.	inscr. eff. Two eagles, l., on thunderbolt, wings closed, to l. double cornucopiae. [Pl. XVI, 44 P.] Sv. 1424, XLVIII, 8-11. B. M. 106, 24-30, XXVI, 8.	32 30

OBVERSE.	REVERSE.	MEAS.
Ptolemy X, Soter II, 117-81 B. C.		
Barbarous copy of head of Zeus Ammon r., laureated.	.... ΕΜΑΙΟΥ... eff. Barbarous copy of ΠΤΟΛΕΜΑΙΟΥ ΒΑΣΙΛΕΩΣ. Two eagles l., on thunderbolt. [Pl. XV, 45 P.] Sv. 1917 LXIV. 7; Svoronos puts that piece under the section of barbarous imitation of ptolemaic coins. He dates it between 86-84 B. C. «ἐκ τῶν ἐτῶν τῆς ἐπι Πολλ. Ι', Σωτήρος Β', ἐπαναστάσεως τῶν ἐγχωρίων (;).	30

Roman Coins of Alexandria.

YEAR.	OBVERSE.	REVERSE.	MEAS.
Claudius I, 41-54 A. D. <i>Billon.</i>			
2	.... ΓΕΡΜΑΝΙ... ΤΟΚΡ. (obscure) Head of Claudius r., laureated. in front, [B.]	ΑΝΤΩΝΙΑ ΣΕΒΑΣΤΗ Bust of Antonia r., hair in queue. [Pl. XVII, 1 R.]	26

YEAR.	OBVERSE.	REVERSE.	MEAS.
3	ΚΑΙΣΣΕΒΑΓΕΡΜΑ- ΝΙΑΥΤ... Similar. in front, [Γ].	.....ΣΑΛΙ ΝΑ ΚΑΙΣ ΣΕΒΑΣ. Messalina as Demeter standing l., holds two figures as her children, and ears of corn, l. arm rests on column. [Pl. XVII, 2+3 R.]	26
4	Similar in front, [Δ].	ΜΕΣΣΑΛΙ ΝΑ ΚΑΙΣ ΣΕΒΑΣ. Similar [Pl. XVII, 4 R.]	26
5	ΤΙΚΛΑΥΔΙΚΑΙΣΣΕ- ΒΑΓΕΡΜΑΝΙΑΥ- ΤΟΚ. in front, [Ε].	Similar. [Pl. XVII, 5 R.]	26
6	Similar. in front [Σ].	Similar [Pl. XVII, 6 R.]	26
Nero, 54-68 A. D.			
3	ΝΕΡΚΛΑΥΚΑΙΣΣΕΒ [ΓΕΡΑΥΤΟ] Head r., laureated.	ΑΓΡΙΠΠΙΝΑ [ΣΕΒΑΣΤΗ] bust of Agrippina r. in front, [Γ] [Pl. XVII, 7 R.]	26
3	Similar.	ΟΚΤΑΟΥΙΑ [ΣΕΒΣΤΟΥ] bust r. in front, [Γ] [Pl. XVII, 8 R.]	26
3	Similar.	ΔΙΚΑΙ [ΟΣΥΝΗ] Dikaiosyné stan- ding l. holds balance. behind, [Γ] [Pl. XVII, 9 R.]	26
3	Similar.	ΟΜΟ ΝΟΙΑ Homonoia seated l., in r. patéra in front, [Γ] [Pl. XVII, 10 R.]	26

YEAR.	OBVERSE.	REVERSE.	MEAS.
3	Similar.	ΔΗΜΟΣΡΩ ΜΑΙΩΝ Demos of Romans, standing l., holds scep- tre and cornucopiae. in front, [Γ] [Pl. XVII, 11 R.]	26
3	Similar.	ΠΡΟΝ ΝΕΟΥΣΕ ΒΑΣΤΟΥ Emperor radiated seated l., holds roll and sceptre. in front, [Γ] [Pl. XVII, 12-13 R.]	26
3	Similar.	Rome seated l.; helmeted, holds niké? and sword in sheath. in field, ΡΩ ΜΗ to r., [Γ] [Pl. XVII, 14 R.]	26
3	Similar.	ΝΕΟ ΑΓΑΘ[Ο]ΔΑΙΜ.. Agathodai- mon r., wearing skhent, infolds ears of corn and poppy. to r., [Γ] [Pl. XVII, 15 R.]	26
4	Similar.	ΔΙΚ... Dikaiosyné l., holds ba- lance, behind, [Δ] [Pl. XVIII, 16 R.]	26
5	Similar.	Similar ... (effaced) behind, [Ε] [Pl. XVIII, 17 R.]	26
5	Similar.	Eirené standing r.; holds caduceus and helmet. in field, ΙΡΗ ΝΗ in front [Ε] [Pl. XVIII, 18-19 R.]	26
6	Similar.	[ΔΙΚΑΙΟ] ΣΥΝΗ Dikaiosyné stands l., with balance in front, [Σ] [Pl. XVIII, 20 R.]	26

YEAR.	OBVERSE.	REVERSE.	MEAS.
10	Similar. but head of Emperor, radiated.	ΠΟΠΠΑΙΑΣΕΒΑΣΤΗ bust r. in front, \perp [Pl. XVIII, 21-22 R.]	26
10	Similar, but head laur.	[ΑΥΤΟΚ]ΡΑ bust of Nilus r., with cornucopiae and lotus on head, behind shoulder reed. in front, \perp [Pl. XVIII, 23 R.]	26
10	Similar, head rad.	ΑΥΤΟ ΚΡΑ. bust of Sarapis r., with modius. in front, \perp [Pl. XVIII, 24-26 R.]	26
11	Similar.	ΠΟΠΠΑΙΑΣΕΒΑΣΤΗ bust r. in front, \perp^A [Pl. XVIII, 27-29 R.]	26
11	Similar.	ΑΥΤΟ ΚΡΑ bust of Sarapis r., with modius. in front, \perp^A [Pl. XVIII, 30 R.]	26
11	Similar.	ΑΥ[ΤΟ ΚΡΑ] Eagle l., with palm beside. in front, \perp^A [Pl. XIX, 31-33 R.]	26
12	Similar.	ΑΥ ΤΟ ΚΡΑ bust of Alexandria r., with elephant's skin. in front, \perp^B [Pl. XIX, 34-35 R.]	26
13	Bust l., radiated. in front, \perp .	ΘΕΟΣ ΣΕΒΑΣΤΟΣ head of Augustus r., radiated. [Pl. XIX, 36-37 R.]	26

YEAR.	OBVERSE.	REVERSE.	MEAS.
13	Similar in front, \perp .	ΤΙΒΕΡΙΟΣ ΚΑΙΣΑΡ head of Tiberius r., laur. [Pl. XIX, 38-39 R.]	26
13	Similar in front, \perp .	ΔΙΟΣ ΟΛΥΜΠΙΟΥ bust of Zeus r., laur. [Pl. XIX, 40 R.]	26
13	Similar in front, \perp .	ΣΕΒ[ΑΣΤΟΦΟΡΟΣ] Galley sailing r., [Pl. XIX, 41 R.]	26
14	Similar in front, \perp^A .	ΔΙΟΣΟΛΥ inscr. eff. bust of Zeus r., laur. [Pl. XIX, 43 R.]	26
14	Similar in front, \perp^A .	ΗΡΑ [ΑΡΓΕΙΑ] bust of Hera veiled r. [Pl. XIX, 45 R.]	26
14	Similar in front, \perp^A .	ΠΟΣΕΙΔ inscr. eff. bust of Poseidon r., laur., behind shoulder trident. [Pl. XIX, 42 R.]	26
14	Similar in front, \perp^A .	ΠΥΘΙΟΣ [ΑΠΟΛΛΩΝ] bust of Apollon laur., r., behind shoulder quiver. in front, star [Pl. XIX, 44 R.]	26
Galba, 68-69 A. D.			
1	[ΛΟΥΚΛΙΒΣΟΝΑΠ-ΓΑΛΒΑΚΑΙΣΣΕΒ-ΑΥΤ] Head r., laureated in front, \perp^A .	ΕΙΡ[Η ΝΗ] bust of Eirené veiled, r., behind shoulder caduceus. in front, star [Pl. XX, 46 R.]	24

YEAR.	OBVERSE.	REVERSE.	MEAS.
2	Similar in front, \lfloor^B	[K]PA TH ΣΙΣ Kratesis standing, facing, head l., with niké and trophy. [Pl. XX, 47 R.]	23
2	Similar in front, $\lfloor^B?$ (date obsc.).	[A]ΛΕΞΑΝ ΔΡΕΑ bust of Alexan- dria with elephant's skin. in front, simpulum. [Pl. XX, 48 R.]	25
2?	Similar in front, $\lfloor^B?$ (date obsc.).	[ΕΛΕ]Υ ΘΕ[ΡΙΑ] Elentheria standing l., rests on column, with wreath and sceptre. [Pl. XX, 49 R.]	26
Otho, 69 A. D.			
1	ΑΥΤΟΚΜΑΡΚΟΘ- ΩΝΟΣ ΚΑΙΣΣΕΒ Head r., laureated in front, \lfloor^A	..PH NH bust r. vieled, on head wreath of olive. [Pl. XX, 50 R.]	26
1	Similar in front, \lfloor^A	bust of Roma r., helmeted. in field, [PΩ] MH. [Pl. XX, 51 R.]	25
1	Similar in front \lfloor^A	ΑΛΕΞΑΝ ΔΡΕΑ bust r. with ele- phant's skin. [Pl. XX, 52 R.]	26
Titus, 79-81 A. D.			
?	ΑΥΤΟΚΤΙΤΟΥΚΑΙ- ΣΟΥΕΣΠΑΣΙΑΝΟΥ Head r., laureated.	[ΟΜΟ] ΝΟΙΑ Homonoia seated l., in r. branche of olive. date (eff.) ?	26

YEAR.	OBVERSE.	REVERSE.	MEAS.
Trajanus, 98-117 A. D.			
5	....N ...PA inscr. (Plundered.) Head of Trajanus r., laureated.	Eagle r. in field, L E [Pl. XX, 54 R.]	26
Hadrianus, 117-138 A. D.			
13	ΑΥΤΚΑΙ ΤΡΑΙΑΔ- ΡΙΑ ΣΕΒ. Bust r., laureated, with paludamen- tum and cuirass.	ΠΑ[ΤΗΡ] [ΠΑΤ]ΡΙΔΟΣ Clasped two r., hands. in field, L IΓ [Pl. XX, 55 R.]	26
16	Similar.	Sarapis wearing modius, seated l., on back of throne (niké?); r. is stret- ched over kerberos; holds scepter. in field, LI [S] [Pl. XX, 56 R.]	26
18	Similar.	Similar in field, LI [H] [Pl. XX, 57 R.]	26
19	Similar.	Bust of Nilus r., with cornucopiae, [ΛΕ] [N]ΝΕΑΚ[Δ] [Pl. XX, 58 R.]	26
20	Similar.	Nilus recumbent l., holds reed and cornucopiae, beneath croco- dile r., in front, \lfloor^K [Pl. XX, 59 R.]	26

YEAR.	OBVERSE.	REVERSE.	MEAS.
	<i>Bronze.</i>		
	Uncertain, inscr. eff. head r. (obscure).	Niké advancing l. date eff. ? (Rev. obscure).	28

Vases found in Kôm El-Ahmar.

Ptolemaic Period.

- H. 0,55; W. 0,95 (J. 86827).
Lagynos, black in colour decorated with laurel leaves, neck broken, handle missing. [Pl. XXIII, 1 and XXIV, 1.]
- H. 0,09; W. 0,06.
Vase black in colour, tapers at the base, with a stand, traces of handle, neck missing. [Pl. XXIV, 2.]
- H. 0,006; W. 0,065.
Round vase, black in colour, two small handles closely protruding from both sides, round base, decorated with vertical lines, neck missing. [Pl. XXIV, 3.]
- H. 0,053; W. 0,035.
Small vase, black in colour, vertical lines round body till base, with long handle and long neck. [Pl. XXIV, 4.]
- H. 0,016; W. 0,071 (J. 86828).
Round small black vase, with wide base, and short and narrow neck. [Pl. XXIII, 2.]
- H. 0,016; W. 0,071 (J. 786829).
Long and large black vase, tapers at base, without stand, long neck and wide opening, traces of handle at top. [Pl. XXIII, 3.]

- H. 0,028; W. 0,032.
Small black vase, glazed, wide opening, and a wide base (vase broken). [Pl. XXIV, 7.]
- H. 0,062; W. 0,03.
Small black vase, with narrow base, and long neck, without handle. [Pl. XXIV, 8.]
- H. 00,15; W. 0,055.
Brown long vase, with short neck, opening with flat edge, and small handle. [Pl. XXIV, 9.]
- H. 0,11; W. 0,005.
Red oval vase, with wide neck, partly broken, tapers at end, without base. [Pl. XXIV, 10.]
- H. 0,054; W. 0,033.
Small rose coloured vase, long neck and handle, decorated with black intersecting lines round body, with wide base. [Pl. XXIV, 11.]
- H. 0,082; W. 0,043.
Rose coloured vase, mouth with flat edge, two small handles attached to the body, with base. [Pl. XXIV, 12.]
- H. 0,045; W. 0,215.
A large plate of red clay slightly concave, with thick round edge, small base. [Pl. XXIV, 13.]
- #### Roman Period.
- H. 0,113; W. 0,10 (IInd century).
Red vase, wide neck and long handle, the orifice is with beak to facilitate pouring of liquid, "panse" surrounded with incised ornamental lines; with small base. [Pl. XXIII, 4 and Pl. XXV, 1.]
- H. 0,25; W. 0,20 (J. 86826).
Great red vase, of cylindric shape, flat edge round top. [Pl. XXIII, 5.]
- H. 0,115; W. 0,10 (IIIrd century) (J. 86830).
Large red vase, wide top, closed and perforated in middle, trace of handle at edge. [Pl. XXIII, 6.]

Large vase of red pottery, with long and narrow neck, thick edge, handled, body tapers at base, narrow stand. [Pl. XXIII, 7.]

Two large, oval, red vases, short neck, handle on each side, without base, decorated with incised lines round body. [Pl. XXIII, 8.]

H. 0,155; W. 0,165.

Red vase neck missing, round body, trace of handle, round base.

H. 0,145; W. 0,155.

Round red vase, wide opening, with handle on each side, baseless.

A lid of same clay W. 0,13.

Round stand of clay H. 0,012, W. 0,08. [Pl. XXV, 2.]

H. 0,103; W. 0,73.

Red vase with long neck, traces of a handle and base. [Pl. XXVI, 1.]

H. 0,09; W. 0,115.

Red vase, neck missing, trace of a handle, and base. [Pl. XXVI, 2.]

H. 0,077; W. 0,065.

Round vase, buff colour, short and narrow neck, small handle and base. [Pl. XXVI, 3.]

H. 0,076; W. 0,079.

Round yellowish vase, tapers at the top, ends with short and narrow neck, with base. [Pl. XXVI, 4.]

H. 0,079; W. 0,041.

A small yellowish vase of amphora form. [Pl. XXVI, 5.]

H. 0,078; W. 0,048.

Long vase of red clay, glazed, tapers downwards and ends with small base, round the bulging part of body two lines of blue colour. [Pl. XXVI, 6.]

H. 0,053; W. 0,041.

A small red vase, glazed, tapers at the end, with small base, neck missing, small part of handle. [Pl. XXVI, 7.]

H. 0,083; W. 0,048.

Small vase of buff colour, body nearly cylindrical, with base and handle, neck missing. [Pl. XXVI, 8.]

H. 0,046; W. 0,050.

Red round vase, neck missing, traces of handle, glazed. [Pl. XXVI, 9.]

H. 0,049; W. 0,036.

Small red clay vase, round body and handle, neck broken. [Pl. XXVI, 10.]

H. 0,065; W. 0,044 (IVth century).

Yellowish vase, narrow base, neck missing. [Pl. XXVI, 6.]

H. 0,079; W. 0,050.

Small brown vase, with neck, wide opening, narrow base. [Pl. XXVI, 11.]

H. 0,067; W. 0,041.

Similar, but red in colour, work rough.

H. 0,062; W. 0,038 (Vth century).

A small vase, red in colour, narrow neck, trace of handle. [Pl. XXVI, 12.]

H. 0,038; W. 0,032.

Very small red jar, with stand. [Pl. XXVI, 13.]

H. 0,062; W. 0,057 (later period).

Round red vase, neck missing, rough work.

H. 0,051; W. 0,075.

Two small vases, one is brown, the other is red, wide opening, handle above crossing it. [Pl. XXV, 3 and XXVI, 14.]

H. 0,12; W. 0,08.

Small vase of red colour, wide opening, handled, rough work. [Pl. XXV, 4.]

H. 0,066; W. 0,069.

Brown jar, rough work. [Pl. XXVI, 15.]

H. 0,058; W. 0,073.

Two pots of pottery, red clay, rough work, traces of fire inside. [Pl. XXVI, 16.]

H. 0,060; W. 0,091.
Vase of rough work, red clay, flat edge, round wide opening. [Pl. XXVI, 17.]

H. 0,053; W. 0,044.
Vase of red clay, almost cylindrical, with narrow base and wide opening. [Pl. XXVI, 18.]

H. 0,055; W. 0,053.
Very rough oval vase, with small opening, baseless. [Pl. XXVI, 19.]

H. 0,033; W. 0,049.
Small vase or pot, brown in colour, round body, narrow opening, wide base. [Pl. XXVI, 20.]

H. 0,084; W. 0,029.
Neck of a vase, of brown clay, in the form of neck and head of cock, beak is pierced to pour liquid. [Pl. XXVI, 21.]

A fragment of vase of alabaster, traces of neck and handle. [Pl. XXV, 5.]

H. 0,07; W. 0,14.
Plate of red clay with base, edge curving inside. [Pl. XXV, 6.]

H. 0,055; W. 0,12.
A similar one, but coloured with red paint.
Similar ones of different sizes. [Pl. XXV, 7 + 8 + Pl. XXVI, 22.]

H. 0,045; W. 0,08.
Small plate of red clay, wide opening and ovoid base. [Pl. XXVI, 23.]

H. 0,003; W. 0,095.
A plate dish with narrow base and wide edge. [Pl. XXVI, 24.]

H. 0,027; W. 0,093.
Reddish small plate. [Pl. XXV, 9.]

H. 0,04; W. 0,105.
Flat plate, red colour, rough work. [Pl. XXVI, 25.]

H. 0,045; W. 0,11.
Plate of red clay, wide top and narrow base. [Pl. XXVI, 29.]

H. 0,03; W. 0,11.
Flat plate, thick and red clay, rough work. [Pl. XXVI, 26.]

H. 0,05; W. 0,101.
Plate of rough work, with narrow base, red colour.

H. 0,73; W. 0,115.
Ladle for water of red and thick clay. [Pl. XXV, 10.]

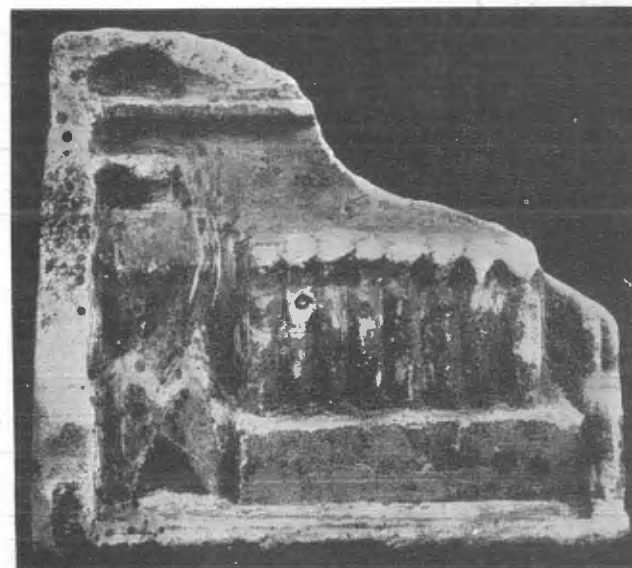


Fig. 9.

H. 0,013; W. 0,085.
Small dish, buff colour, with base. [Pl. XXVI, 27.]

H. 0,044; W. 0,048.
Small vase of bronze, round, with very narrow opening, two incised lines round body. [Pl. XXVI, 28.]

H. 0,09; W. 0,10.
Ex-voto offering in limestone representing a large jar, supported on a base, beside it are two rows each of 8 similar jars stand on a plinth. [Fig. 9.]

H. 0,18; W. 0,11 to 0,95 (J. 86847).

A curious baked brick which has the form of an altar ⁽¹⁾ as the measurements show; it tapers towards the top, where there is a shallow sunken basin. On the

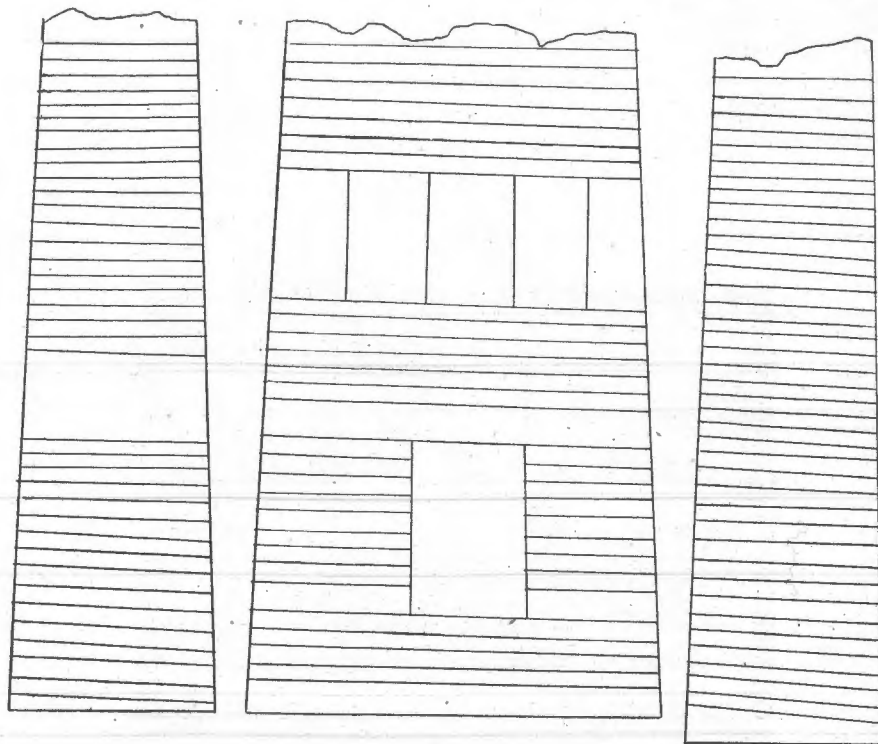


Fig. 10.

front and sides, there is the design of a house with door below and two windows above.

[Fig. 10, Pl. XXIII, 10.]

⁽¹⁾ (Palace of Minos 1 p. 220 sq.). A votive model in *terra-cotta* of a Minoan shrine « But away in Babylon something still nearer in type to that one—votive house—fronts, of baked clay, in the Temple of Ishtar dating from the beginning of 3rd millenian B. C. (Prof. WADDELL, *Eg. Gazette*, 4 June 1943) ».

A model of a house of limestone had been found in Sakha, is now in the Musée du Louvre no. E 5357. After having described the method and the details of houses in Egypt, the writer dated that model during the New Empire. « Les maisons citadines sont en forme de fours sans décrochement aucun. Le type est assez fréquent. Il est donc plausible de dater le modèle de maison du Musée du Louvre de l'époque de Nouvel Empire. » (*Rev. d'Égyptologie*, 1938: Christiane DESROCHES, *Un modèle de maison citadine du Nouvel Empire*, p. 17-25, 4 pl. 1, fig. 142. Also

H. 0,10; L. 0,11.

Statue of a horse (a toy), red clay, pierced through mouth.

H. 0,043; L. 0,074.

Half-boat of red clay.

Diam. 0,078; H. 0,048.

Stand of statue of marble, round, with two holes on the surface.

A piece of red pottery, with cross upon it and trace of a figure on the side.

A hand of marble, two fingers and a part of the thumb missing; holding an object?

Two obscene objects of red clay and lime-stone. [Pl. XXVII, 1.]

Diam. 0,05.

A disk of red clay, as a cover of a vase with two holes near the edge.

[Pl. XXVII, 2.]

Sakha.

H. 0,11; W. 0,115.

A large red vase, painted with white decorations, with narrow base, two small handles on both sides near the top, one is missing, wide opening.

[Pl. XXVII, 3.]

H. 0,28; W. 0,10.

A long object of red clay (may be a stand of a vase?) decorated with engraved ornaments, it is of cylindrical shape.

[Pl. XXVII, 4.]

PERROT et CHAPIEZ, *Hist. de l'Art*, p. 485 and ERMAN, *Aegypten und Aegyptisches Leben in Altertum*, p. 241.)

Mr. Engelbach in the *Annales du Service des Ant.*, XXXI; Recent acquisitions in the Cairo Museum, p. 129 sq. mentioned four models of the Greco-roman buildings pl. III, all of limestone. Two of them found in Sakha; one in Naukratis nos. J. 5635, 50205, 30340 and 28784. The interior of all these towers is hollowed. Three of them have kiosks above. He also mentioned another one in the British Museum. Mr. Engelbach rightly thinks that these towers do not represent architectural models. He is inclined to believe that they were some kind of votive-offering meant to contain a lamp.

Lamps. Kôm El-Ahmar

Ptolemaic Period.

W. 0,079; H. 0,039.

A fragment of round large lamp, red clay, a pierced ledge at side, without handle, with large opening in discus, circular ornaments round opening, with base, but nozzle and half of lamp is missing.

L. 0,078; W. 0,058; H. 0,038.

Similar but of glazed red clay, with nozzle and base.

L. 0,083; W. 0,059; H. 0,032.

Similar, large opening in discus, on side pierced ledge.

L. 0,067; W. 0,050; H. 0,030.

Small white lamp, upper half is coloured red, a ledge at side.

L. 0,07; W. 0,06; H. 0,035.

Black lamp glazed, a ledge at the side, with base, no handle.

Roman Period.

Diam. 0,014; H. 0,155.

An uncommon type of candelabrum (damaged) of red clay. Originally composed of at least 12 lamps, arranged in groups of three (one above the other) supported with four pillars of terra-cotta; above all the pillars a great lamp of 4 nozzles,—on one of the pillars—there is a trace of a handle. [Pl. XXVIII.]

L. 0,095; W. 0,064; H. 0,021 (J. 86834) 1st century.

A small round lamp, buff coloured, one short nozzle. On discus a bear lying to the right, and beneath it a small hole. On the reverse side there is the design ∞.

L. 0,085; W. 0,065; H. 0,023 (J. 86835) 11th century.

Small lamp of red clay, shouldered with two knobs at the side, at the beginning of the nozzle there is the drawing of vase with floral designs round the hole.

L. 0,014; W. 0,079; H. 0,040 (11th-111th century).

Large lamp of red clay and of two round broken nozzles, circular concave discus, a small hole in middle with ornaments, traces of handle at end.

Triangular lamp's handle of red clay, with floral decoration in relief.

L. 0,097; W. 0,075; H. 0,029 (111th cent.).

Round lamp of red clay, a knob on side.


L. 0,084; W. 0,063; H. 0,039.

Small lamp, buff colour, convex surface with complete frog, with a hole in its back; one nozzle.

On the reverse side, there is the design .


L. 0,082; W. 0,071; H. 0,033.

White lamp with frog, the mouth of which is the opening of nozzle.

On the reverse side, there is the design .

L. 0,080; W. 0,063; H. 0,032.

Small lamp, white clay, shape of frog on discus, with hole in its back, the frog's mouth is the hole of nozzle.

On the reverse side, there is the design .

L. 0,078; W. 0,068; H. 0,028 (11th cent.).

Small lamp, round, of red clay, with ledge at the side, one nozzle and large opening on surface.

L. 0,099; W. 0,060; H. 0,034.

Small lamp, red clay, ledge at side, a long neck of nozzle, radiated with palmette.

L. 0,077; W. 0,055; H. 0,033 (J. 86836).

Small round and red lamp, a thump-piece on side, one nozzle, large opening on surface.

L. 0,082; W. 0,050; H. 0,027 (J. 86833).

Small red lamp, with pierced ledge at the side, a definite neck, circle of dots round discus, small hole in the middle, at the beginning of neck rectangular design.

L. 0,075; W. 0,056; H. 0,032 (ivth or iiird cent.?) (J. 86832).

Small round lamp, discus like wheel, small hole in middle, short nozzle with decoration round it, discus is decorated.

L. 0,082; W. 0,075; H. 0,035 (iiird-ivth cent.?).

Lamp of buff colour, representation of frog with lines, the hind legs are clear, small hole in middle of discus, short nozzle.

Rev. ⊙.

L. 0,078; W. 0,072; H. 0,032 (iiird-ivth cent.?) (J. 86838).

Round white lamp, two figures seated round the hole on discus facing each other, hoop between their hands, short nozzle.

Rev. 𐤀𐤆.

L. 0,080; W. 0,072; H. 0,034 (iiird-ivth cent.?).

Small round lamp white clay, representation of frog with lines, small hole in middle, short nozzle.

Rev. 𐤀𐤆.

L. 0,084; W. 0,060; H. 0,025 (ivth-vth cent.?) (J. 86837).

Long lamp, red clay and handle, graved till nozzle, sides radiated, dots round hole.

Rev. ⊕.

L. 0,095; W. 0,070; H. 0,032 (ivth or vth cent.?).

Similar white lamp, but baked with fire; groove begins with the handle, circles round hole.

L. 0,086; W. 0,054; H. 0,024 (vth cent.).

Small lamp of white clay, small hand at the hind, discus is slightly concaved, on it cross, small hole, one short nozzle.

L. 0,058; W. 0,058; H. 0,039 (late period).

Round lamp of rough work, red clay, trace of handle, large hole in middle of discus, no nozzle, the hole of wick separated from the hole of discus with thin, narrow space.

L. 0,072; W. 0,069; H. 0,033.

Round red lamp, rough work, small handle, discus slightly convexed, with wide hole, no nozzle, the opening of wick is on the edge of discus.

L. 0,078; W. 0,068; H. 0,038.

Round lamp, brown clay, similar to the precedent but without handle.

Fragment of a group of lamps. It may be a circular frame with several lamps around?

H. 0,102; W. 0,067.

Unusual shape of lantern with stand, red clay, tapers at the top. It has a handle at the side. Tapering top has a small opening like that of a vase. At the side above handle is another opening—nearly square (fig. 11).



Fig. 11.

(Professor Alan Wace and Mr. Alan Rowe are of that opinion.)

Weights

Kôm El-Ahmar.

H. 0,010; W. 0,078.

Five pyramidal objects of red terracotta, pierced near top,—probably weights—

A : H. 0,010; W. 0,078, weighs, 466 grammes.

B and C : H. 0,065; W. 0,041; each weighs, about 130 grammes.

D : H. 0,082; W. 0,041; weighs, 140 gr. 40.

E : H. 0,090; W. 0,053; but conical in shape, weighs, 170 gr. 90.

H. 0,040; W. 0,028.

A conical weight of marble, weighs 58 gr. 45.

H. 0,009; W. 0,018.

A cubical weight of bronze, weighs, 19 gr. 50.

Diam. 0,04.

A ring of bronze.

Handles of Amphorae.

Amphora-handle earthenware, l. 0,077.

Rectangular stamp :

ΜΟΣΧΟΥ

Similar, l. 0,080.

Square stamp :

ΠΟΛ

Similar, l. 0,09.

Round stamp, in centre rose encircled by a legend which is effaced :

.....

Similar, l. 0,097.

Similar stamp but a part of legend is clear.

.....[ΤΙ]ΟΥΑΝΤ...Ν
[ΑΝΤΩΝΙΑΝΟΥ, ΑΡΤΑΜΙΤΙΟΥ]

Similar, l. 0,087.

Similar stamp.

[ΕΠΙ] ΑΡΧΙΔΑΜΟ[Υ] ΣΜΙΝΘ[Ι]ΟΥ

A dice of lime-stone, marks effaced, 0,016.

Heads of Statues.

[These heads were found at the north of Kôm el Ahmar (cf. *supra*); all are of plaster except one of lime-stone. Other five heads of marble, are now kept in Greco-Roman Museum of Alexandria.]

H. 0,270; W. 0,0183 (J. 86842).

Head of Zeus, nose broken, part of front damaged.

[Pl. XXIX, a.]

H. 0,215; W. 0,204 (J. 86839).

Head of Eros or Dionysos.

[Pl. XXIX, b.]

H. 0,225; W. 0,222 (J. 86840).

Female head, with curled hair, on front band, behind head a brick with which it was attached to the wall.

[Pl. XXX, b.]

H. 0,245; W. 0,227 (J. 86843).

Head with curled hair and mouth open.

[Pl. XXX, a.]

H. 0,182; W. 0,180 (J. 86841).

Head of a figure in profile, curled hair, part of face is cut in order that head may be fixed in a corner of a wall.

[Pl. XXXI, 6.]

H. 0,182; W. 0,180 (J. 86844).

Head with curled hair, the hind part of head is cut in order that the head may be fixed in a corner of a wall.

[Pl. XXXI, 1.]

H. 0,220; W. 0,228 (J. 86845).

Head with curled hair.

[Pl. XXXI, 2.]

H. 0,245; W. 0,235 (Temp. 20.2.44.1).

Head of child, curled hair, noze effaced, mouth damaged.

[Pl. XXXI, 3.]

Small head (face only) of a child smiling.

[Pl. XXXI, 5.]

Female head, with curled hair.

[Pl. XXXI, 4.]

Head with curled hair, face damaged.

[Pl. XXXI, 7.]

Two small heads, with curled hair.

[Pl. XXXI, 8, 10.]

Female head, high hair-dress, face damaged.

[Pl. XXXI, 9.]

Plaster statue of Harpocrate on the lotus, finger into mouth.

[Pl. XXXI, 11.]

A small plaster statue of a dog sitting.

[Pl. XXXI, 12.]

Small statue of bronze, legs missing. Two covers of lamps upon which two dogs. Two heads of uraei.

An arrow of bronze, H. 0,088. Long spear of bronze, H. 0,180.

Five objects of toilette in ivory or bone.

[Pl. XXXI.]

A part of pin with lines dividing the surface into triangular spaces, coloured red and blue (prov. Sakha).

Side 0,012; W. 0,009.

Small scarab; steatite; light yellow (18th dyn.).

Base: deeply incised. Figure? (obscure). (Fig. 12).



Fig. 12.



Fig. 13.

Fragments of vases of pottery decorated, and small masque figurates Zeus or Sarapis. [Pl. XXXII.]

A fragment of bone upon which a figure standing facing, a part of curtain on r., (Byzantine period) (cf. STRZYGOWSKI, *Cat. gén. des Ant.*, p. 172-174, Taf. XI-XIII; and DALTON, *Cat. of Early Christian objects in Brit. Mus.*) (fig. 13).

PLATES



3.P.



3.P.



29.P.



29.P.



1.P.



1.P.



4.P.



9.P.



9.P.



6.P.



4.P.



6.P.



2.P.



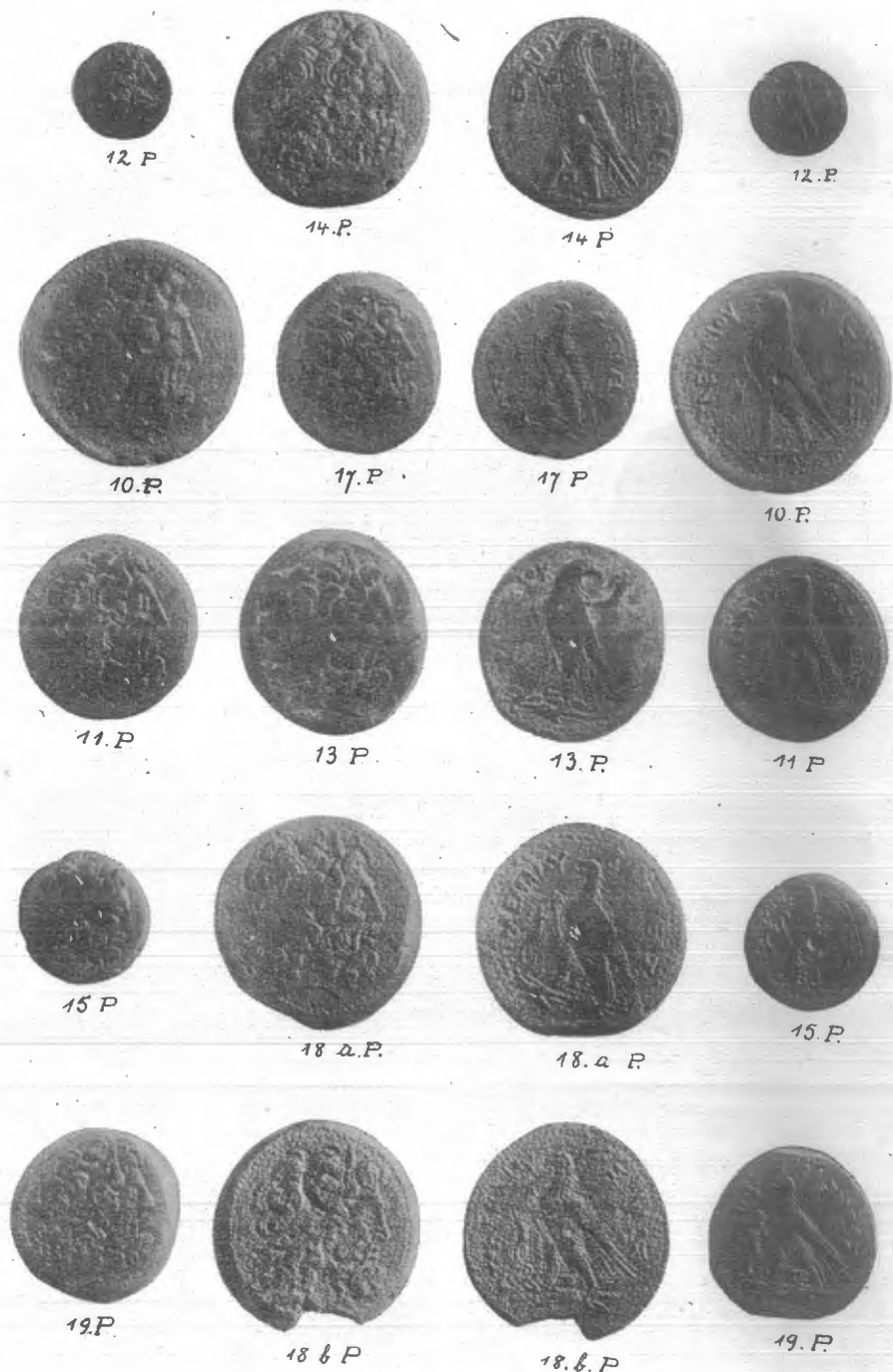
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8.P.





21.P



21 P.



22.P



28.P



28 P.



22 P.



24 P



24 P.



25.P



20.P



20.P



27 P



27.P



36.P.



34.P.



34.P.



36.P.



35.P.



32.P.



32.P.



35.P.



30.P.



30.P.



31.P.



31.P.



43.P.



43.P.



38.P.



38.P.



3.R.



3.R.



45.P.



45.P.



44.P



44.P



42.P



42.P



61.R.



40.P



40.P



61.R.



60.R.



64.R



64.R.



60.R.



65.R.



39.P



39.P



65.R.



62.R.



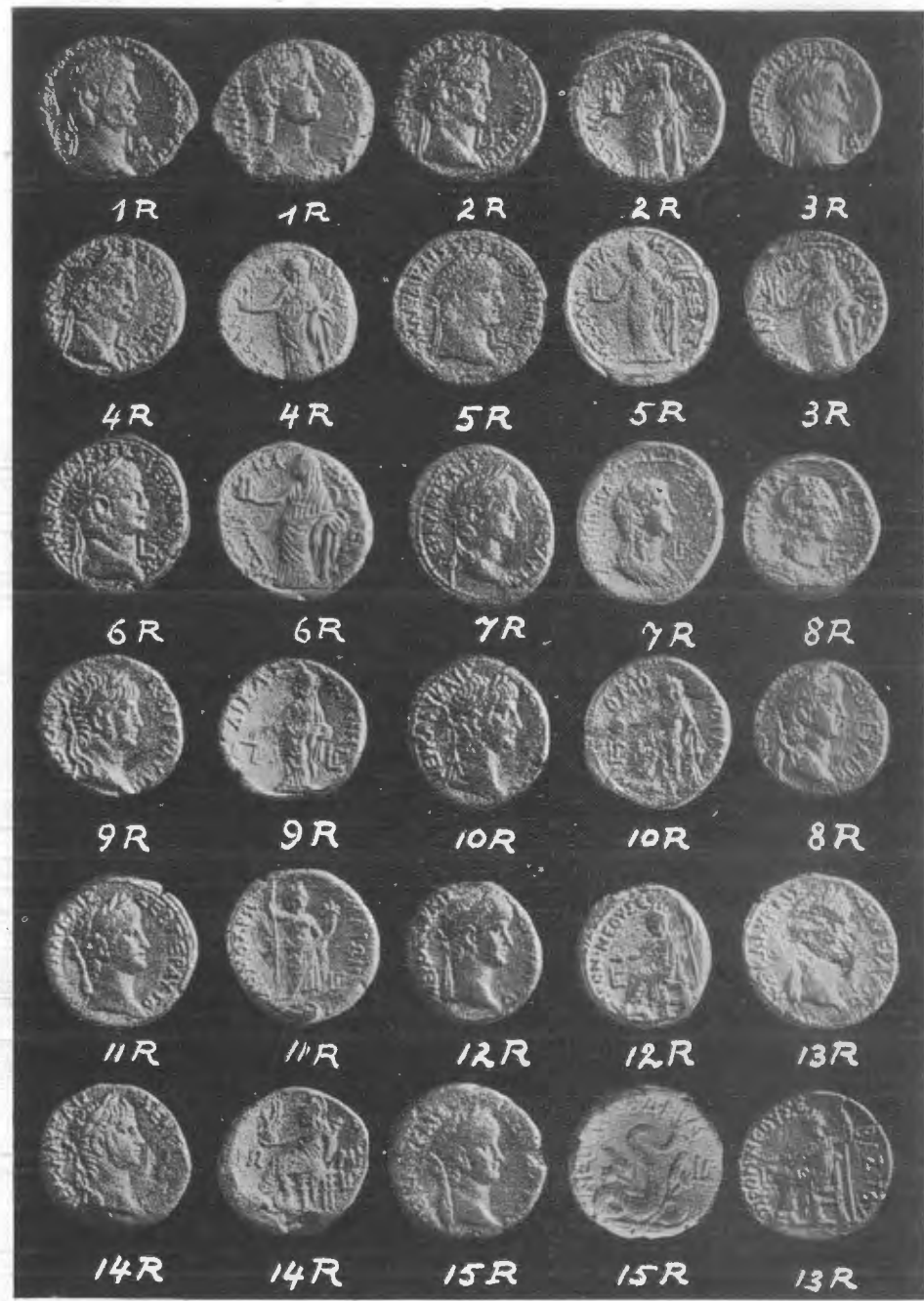
66.R.



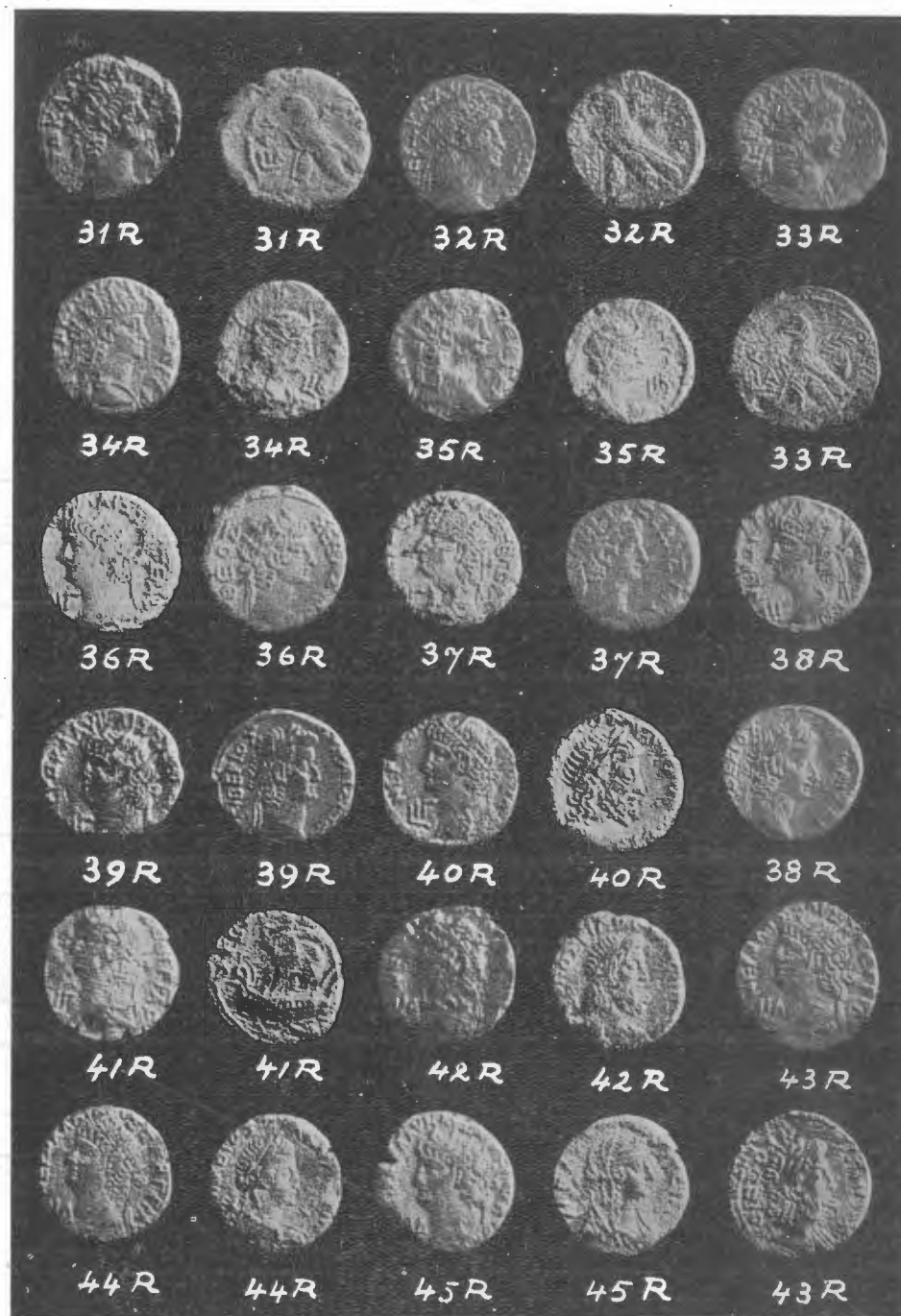
66.R.



62.R.

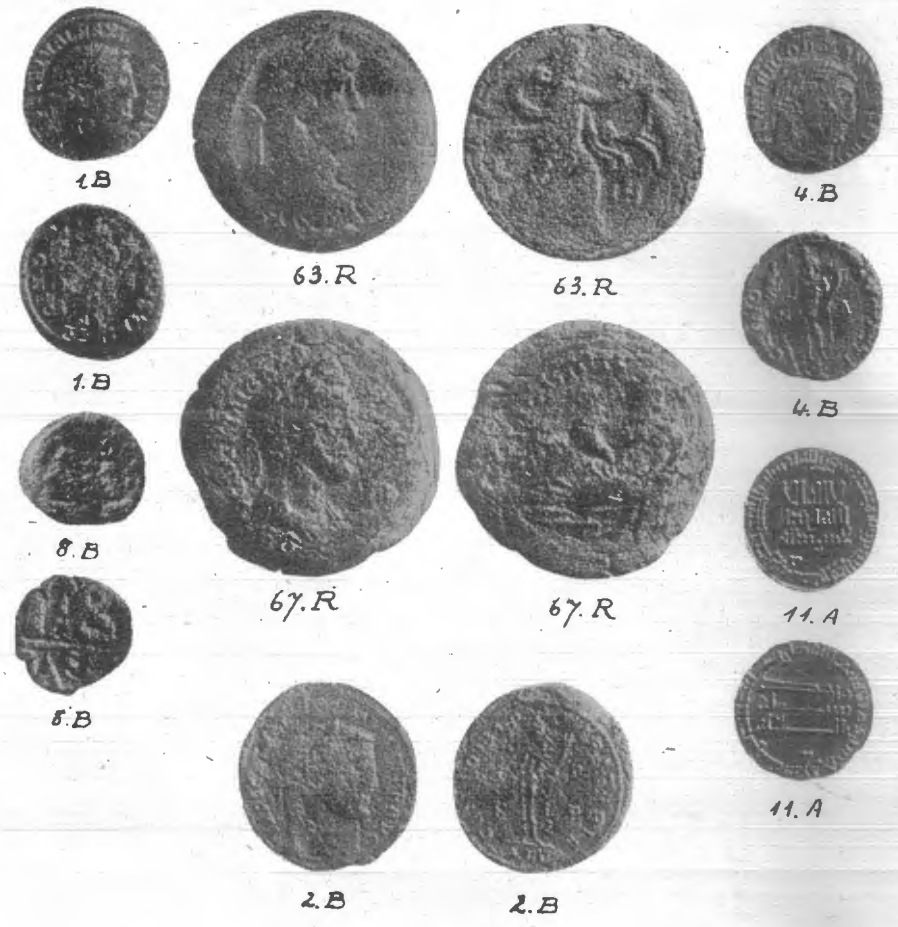














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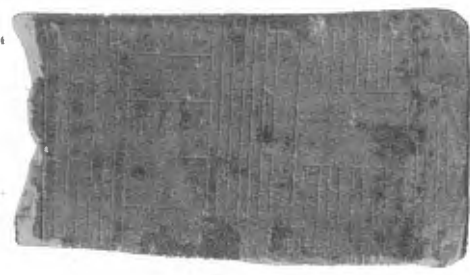
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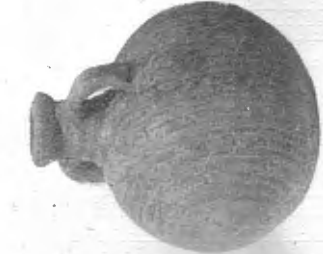
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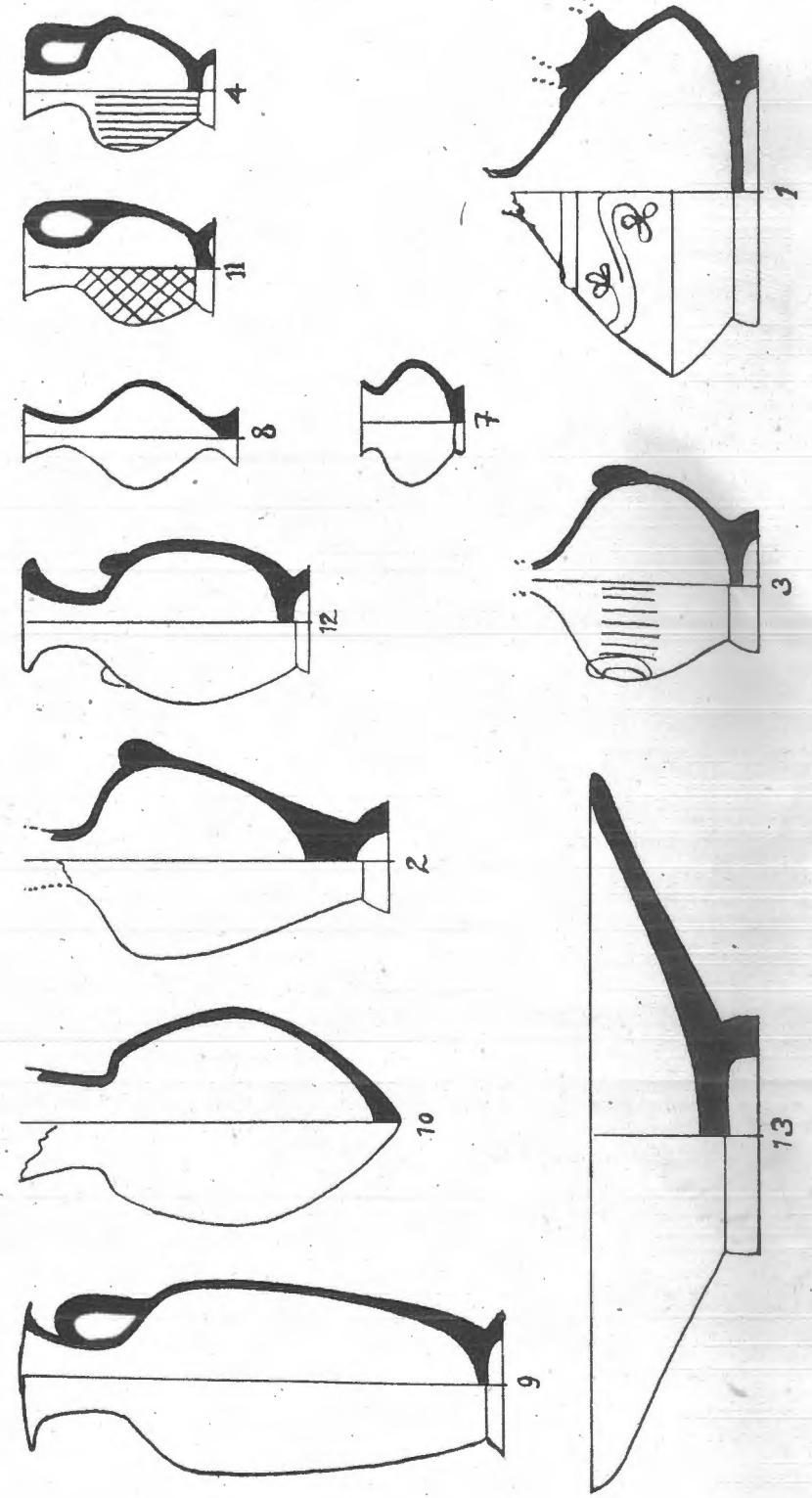
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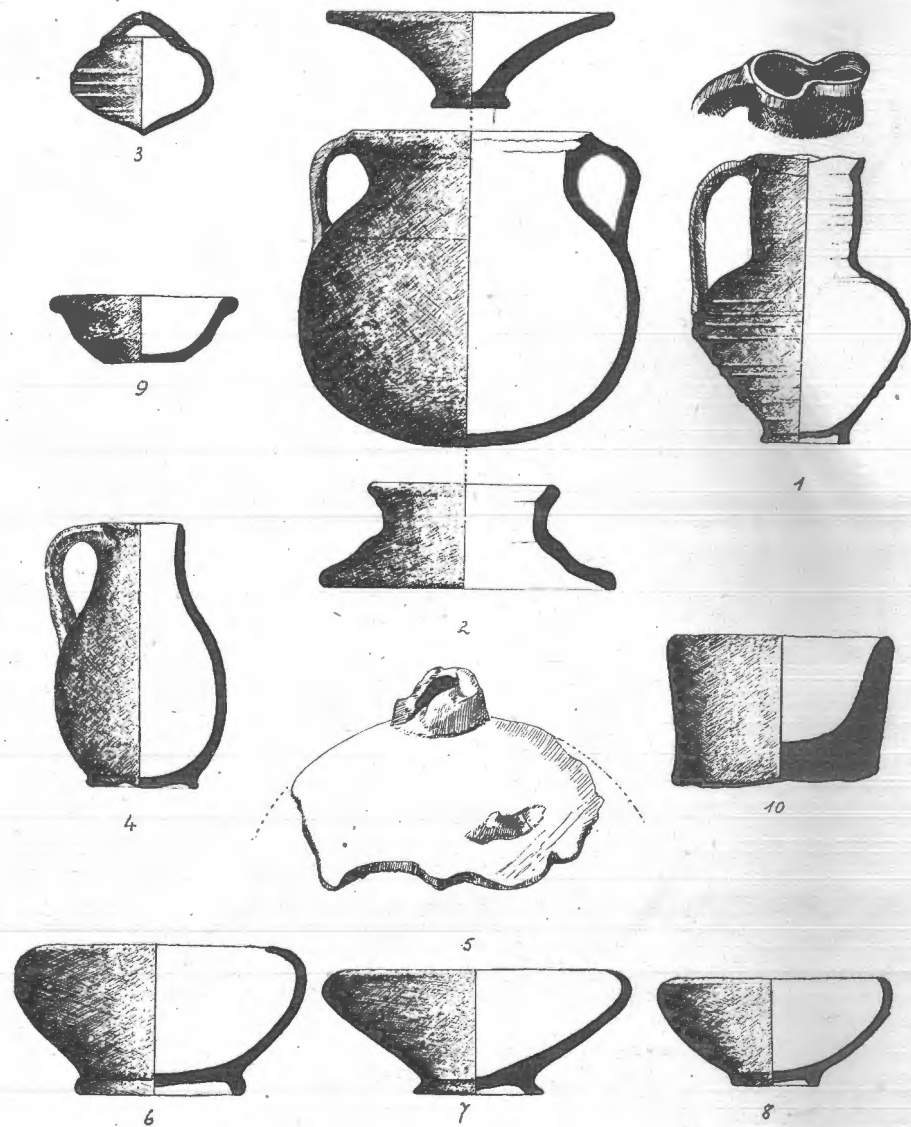


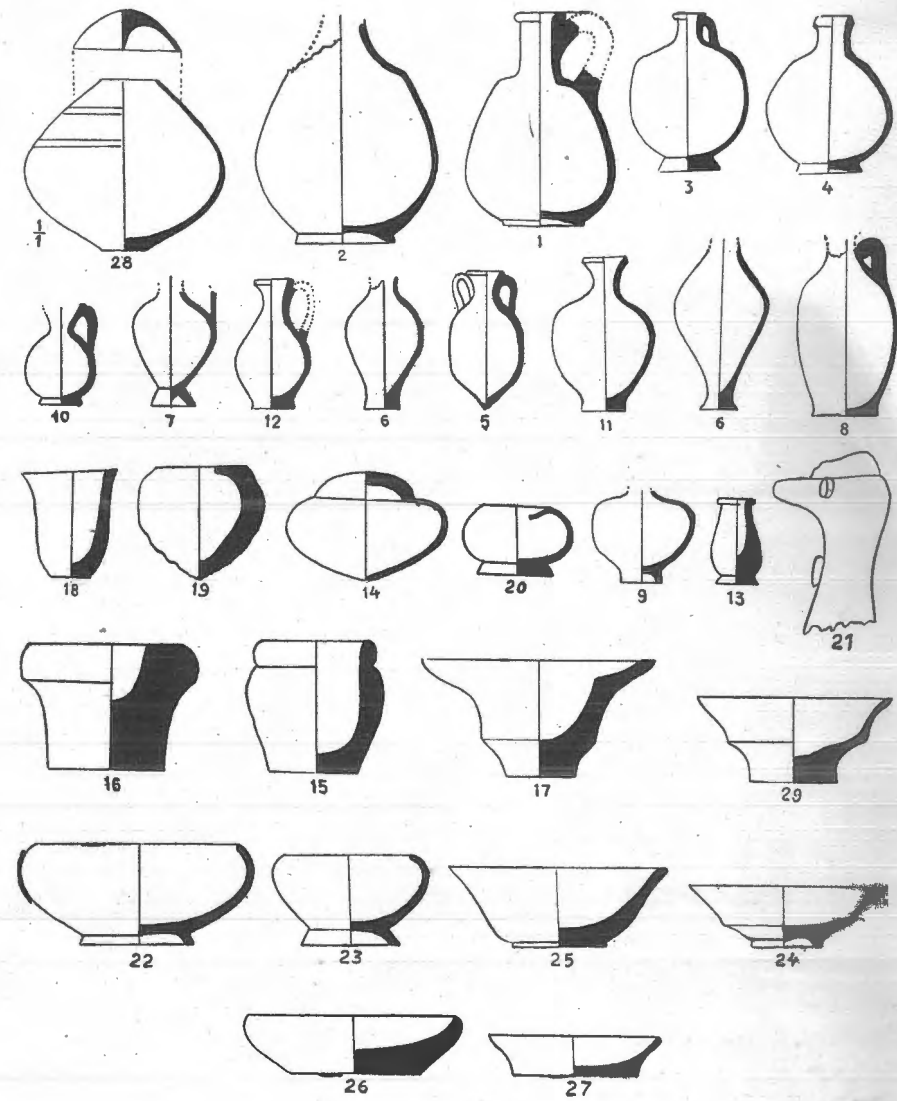
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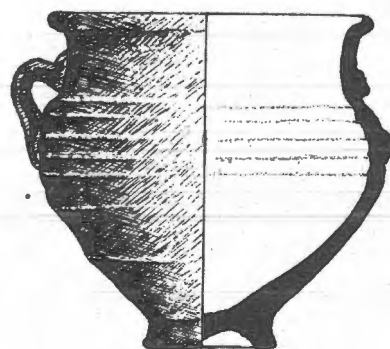




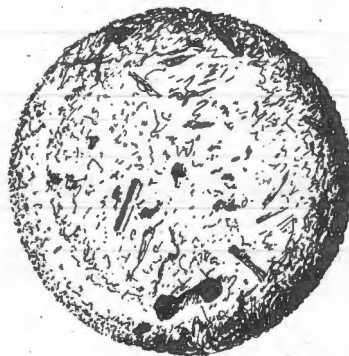




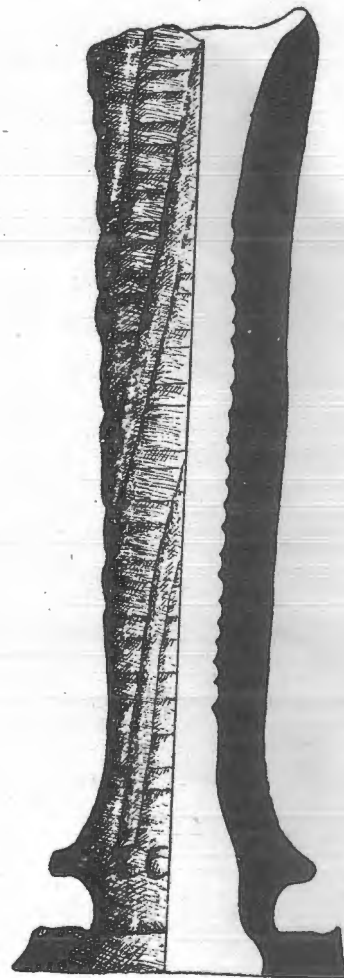
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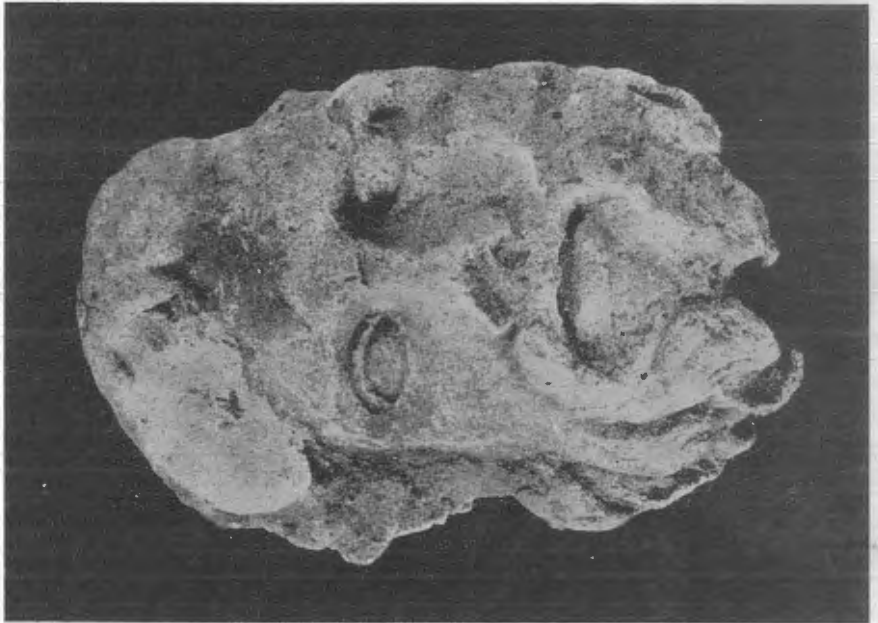


4





b.



a.



b.



a.

